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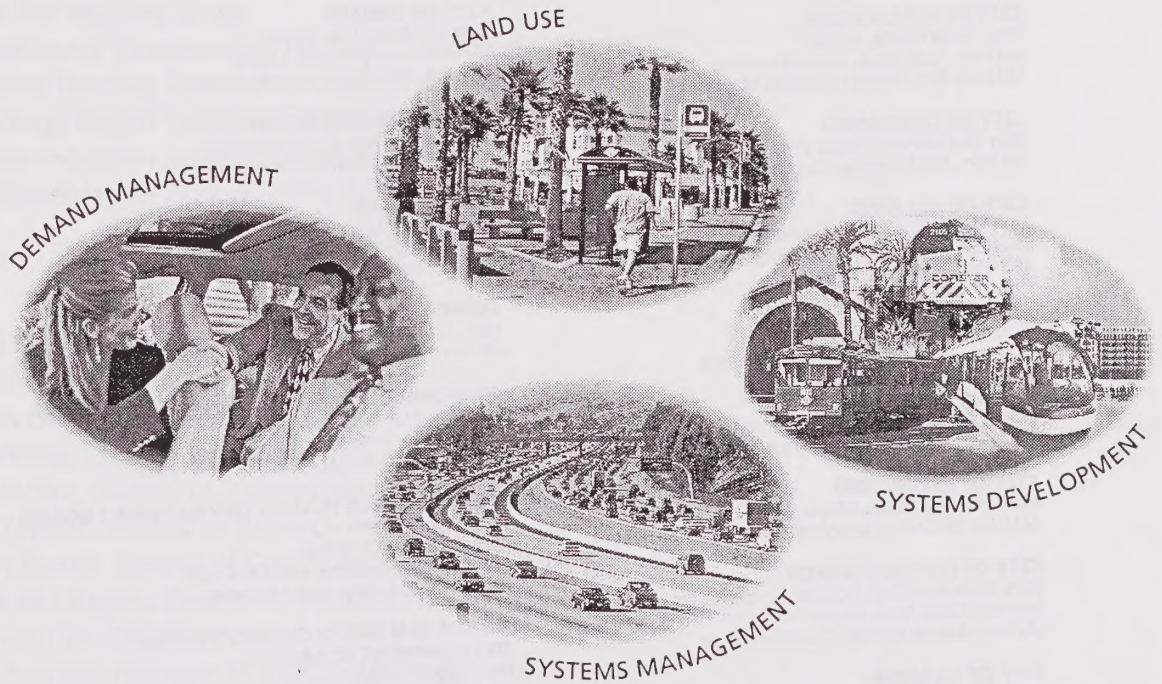
The Transportation Plan for the San Diego Region



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Many individuals aided in the preparation of material contained in this long-range Regional Transportation Plan (RTP), MOBILITY 2030. In particular, the cooperation and involvement of members of various SANDAG committees and working groups are acknowledged.

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CHAPTER 1
EXECUTIVE SUMMARY

Ask anyone what's the biggest problem in San Diego, and you'll probably hear "traffic." However, if we have learned anything in the last decade, it's that we can't build our way out of traffic congestion. This leaves us at a crossroads – the road less traveled may hold the key to how we commute in the future.

As one local newspaper editorialized, the SANDAG Regional Transportation Plan "...will not unclog the county's freeways overnight. Instead of being a silver bullet, it's more like the discovery of an old prospector's map indicating that there may be a silver lode somewhere in the far-off mountains."

During the next 30 years, we can expect to share our communities with more than a million new neighbors. We will create half a million more jobs and need to build 340,000 new homes. The major appeal is our region's quality of life. While it may mean different things to different people, we can all agree that quality of life encompasses safe and livable communities, affordable housing, competitive job opportunities, a healthy environment, good schools and community facilities, and a transportation system that provides easy access to work, school, and other activities. MOBILITY 2030, San Diego's Regional Transportation Plan (RTP), is our region's blueprint for a transportation system that enhances our quality of life and meets our mobility needs now and in the future.

A SMARTER PLAN

The foundation of MOBILITY 2030 lies in better connecting our freeway, transit, and road networks, to our homes, schools, work, shopping, and other activities. In this era of budget and infrastructure deficits, the ultimate success of this Plan will be measured by how well we implement smart growth as our communities are developed and redeveloped over time. To this end, MOBILITY 2030 helps strengthen the land use – transportation connection and offers regional transportation funding incentives to support smarter, more sustainable land use.

Improving transportation is one component of a much larger vision to sustain and improve our region's quality of life. SANDAG currently is preparing a Regional Comprehensive Plan (RCP) that will serve as a foundation for integrating land uses, transportation systems, infrastructure needs, and public investment strategies within a regional smart growth framework. The RCP will be the regional vision to prepare for change and meet our future needs. MOBILITY 2030 is the transportation component of the upcoming RCP.

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MOBILITY 2030 is our region's blueprint for a transportation system that enhances our quality of life and meets our mobility needs now and in the future. The foundation of MOBILITY 2030 lies in better connecting our freeway, transit, and road networks, to our homes, schools, work, shopping, and other activities.

At the heart of MOBILITY 2030 is the Regional Transit Vision, a 21st century strategy to develop a seamless public transportation system for the region – one that is integrated with our growing communities and that ultimately is competitive with driving your car during rush hours.

SANDAG last updated the Regional Transportation Plan in 2000. Since then, public policy discussions have helped shape a new and evolving vision for the San Diego region's future. At the heart of MOBILITY 2030 is the Regional Transit Vision, a 21st century strategy to develop a seamless public transportation system for the region – one that is integrated with our growing communities and that ultimately is competitive for many with driving your car during rush hours.

How is the Plan Developed?

In development for nearly three years, MOBILITY 2030 is the product of collaboration between SANDAG, all 18 Cities and the County government, and our transportation partners – the San Diego Metropolitan Transit Development Board (MTDB), the North San Diego County Transit District (NCTD), and the California Department of Transportation (Caltrans) – along with a wide range of interest groups and other agencies.

With this RTP, SANDAG has begun an effort to better communicate and cooperate with the 17 sovereign tribal governments in the region. The San Diego region contains 18 reservations, more than any other county in the United States. In October 2002, SANDAG held a Summit with representatives of the region's tribal governments. The tribal representatives explained their sovereignty, described the programs that they conduct on the reservations, and discussed the need for better communications between the tribes and SANDAG. The representatives recommended that SANDAG should recognize the rural road needs of the tribes in the RTP. Future summits will be held to continue the dialogue between the governments.

MOBILITY 2030 also looks beyond the San Diego region to link transportation and land use planning across our borders with Orange, Riverside, and Imperial Counties, and Baja California, Mexico. The last several years have seen a steady increase in interregional and international commuting, as more people are choosing to live in Riverside County or Baja California, Mexico while keeping their jobs here. New with MOBILITY 2030, the 2030 Regional Growth Forecast recognizes these travel trends and accounts for future housing both within the San Diego region as well as outside of the region's boundaries.

To accommodate the dynamic cross-border transportation system, MOBILITY 2030 includes major projects to improve access to border crossings, expand freight rail service, and coordinate commercial vehicle crossings. On a collective basis, these projects will modernize and transform transportation infrastructure along the U.S./Mexico border from San Diego/Tijuana east to Arizona/Sonora.

Building on Our Progress

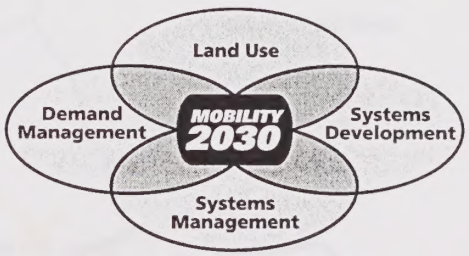
MOBILITY 2030 builds upon the existing transportation system in place today and the major projects in progress from the 2020 RTP. Several highway improvements are currently under construction, including the I-5/I-805 merge widening, completion of State Route (SR) 56 between Interstates 5 and 15, SR 125 between Fletcher Parkway and SR 94, various widening projects on Interstates 5 and 15, and freeway-to-freeway interchange connecting ramps at I-5/SR 78, I-15/SR 56, and SR 94/SR 125.

Transit projects in the construction phase are the Oceanside-Escondido Light Rail, the Mission Valley East Trolley extension, and modifications to several Trolley and Coaster stations, such as San Ysidro, East Village, Nobel Drive, and Sorrento Valley. Construction also is underway on the San Diego Bayshore Bikeway, the Oceanside-Escondido bikeway, the extension of Rancho del Oro Drive in Oceanside, widening Rancho Santa Fe Road in Carlsbad and San Marcos, and incident detection systems (installation of closed circuit television) along stretches of Interstates 8, 15, and 805, and SR 163.

In addition, design and environmental work are underway on the I-15 Managed Lanes (new carpool lanes and bus rapid transit stations), parking lot expansions at several Coaster commuter rail stations, and regional bikeways, such as the Coastal Rail Trail. Roadway projects in the design or environmental phases include SR 905, SR 52 east of SR 125, I-5 North, and over two dozen regional arterials.

MOBILITY 2030 builds upon the existing transportation system in place today and the major projects in progress from the 2020 RTP. Several highway improvements are currently under construction, including the I-5/I-805 merge widening, completion of State Route (SR) 56 between Interstates 5 and 15, SR 125 between Fletcher Parkway and SR 94, various widening projects on Interstates 5 and 15, and various freeway-to-freeway interchange connecting ramps.

FIGURE 1.1—FOUR COMPONENTS OF MOBILITY



A PLAN FOR BETTER MOBILITY

MOBILITY 2030 is developed around four main components: Land Use, Systems Development, Systems Management, and Demand Management (Figure 1.1). Each component has a unique, yet interdependent, role in improving mobility and travel in the San Diego region through the year 2030.

Land Use determines where our homes, schools, work, shopping, and other activities are located and can profoundly affect the way in which we move around the region and within our communities. Systems Development provides needed regional transportation improvements, viable travel choices, and connections to our daily activities.

Systems Management helps to maximize system operations so that we make the best use of our existing transportation resources and provide travelers with real-time travel information to assist them in making informed travel choices.

Growth and change will continue in the region over the next several decades, and all local jurisdictions can make positive contributions toward preparing for that change.

MOBILITY 2030 includes a five-year, $25 million incentive pilot program to foster the integration of smart growth land uses and transportation facilities in our communities.

Finally, Demand Management focuses on reducing trips on the transportation system during peak periods and encouraging alternatives to driving alone (e.g., transit, carpooling, vanpooling, biking, and walking).

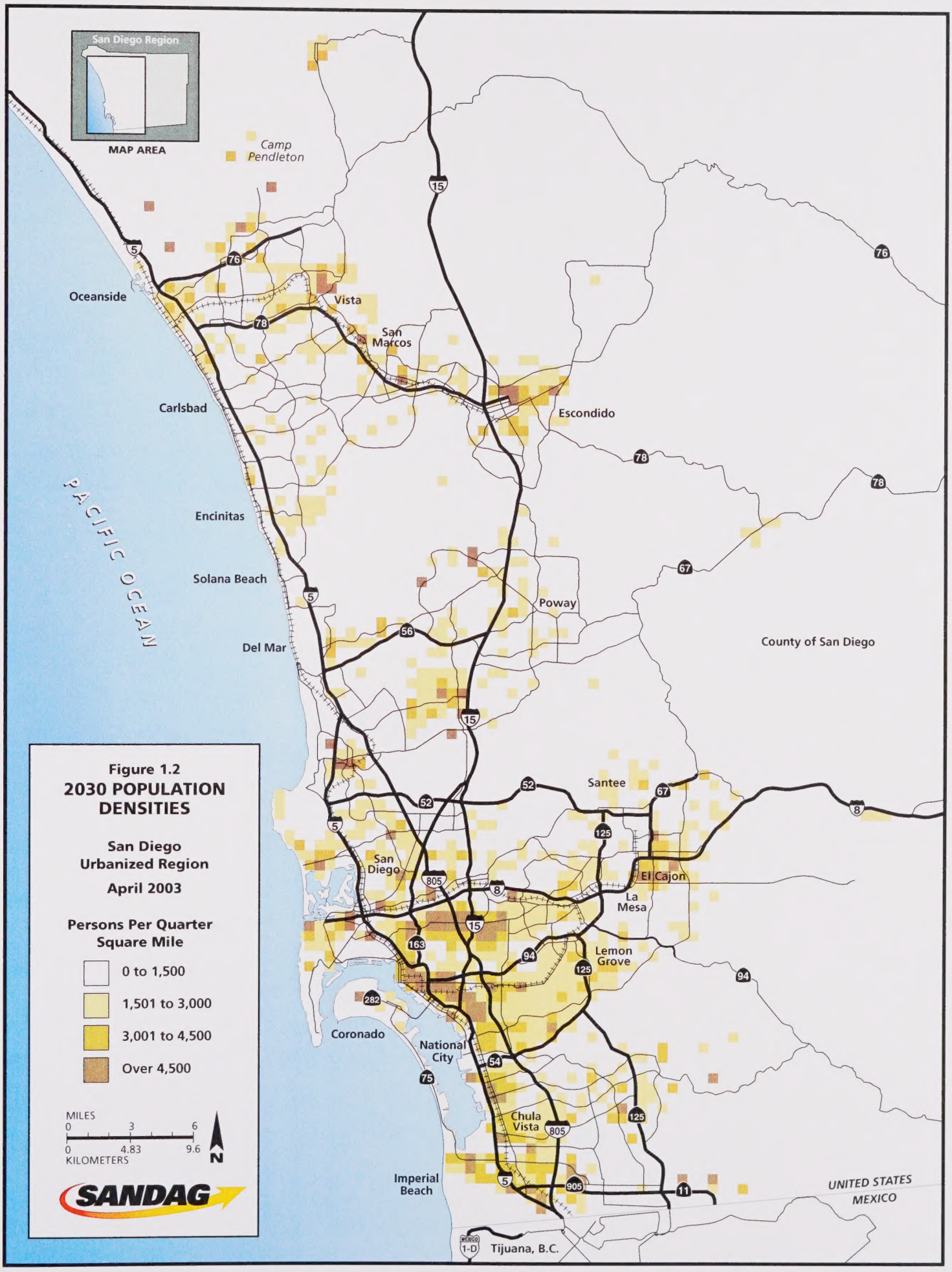
Land Use-Transportation Connection: We Must Grow Smarter

MOBILITY 2030 is founded on a land use plan that reflects the commitments from the 18 Cities and County to "smart growth."[1] It recognizes that growth and change will continue in the region over the next several decades, and all local jurisdictions can make positive contributions toward preparing for that change. Transportation infrastructure and services must be coordinated with land use planning if we are to avoid increased traffic congestion, reduced mobility, and a deteriorating quality of life. Figures 1.2 and 1.3 show population and employment densities per quarter square mile in the year 2030. We cannot fix our persistent transportation problems by focusing solely on transportation. For the first time, MOBILITY 2030 includes a five-year, $25 million incentive pilot program to foster the integration of smart growth land uses and transportation facilities in our communities.

Systems Development: More Travel Choices

New and better connections are planned to more efficiently move people on buses, trolleys, trains, and cars throughout the region. When implemented, the improvements in MOBILITY 2030 will complete the region's highway and roads network, and transform it into a robust system with more lanes dedicated to carpools and buses integrated with more than a dozen new high-quality regional transit services. The Plan includes a flexible roadway system which can be used by transit and high occupancy vehicles (HOVs), and improves goods movement through the region.

[1] Smart growth is a compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities.


San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
PACIFIC OCEAN
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
El Cajon
La Mesa
San Diego
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 1.2
2030 POPULATION DENSITIES
San Diego Urbanized Region
April 2003
Persons Per Quarter Square Mile
0 to 1,500
1,501 to 3,000
3,001 to 4,500
Over 4,500
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
PACIFIC OCEAN
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Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 1.3
2030 EMPLOYMENT DENSITIES
San Diego Urbanized Region
April 2003
Employees Per Quarter Square Mile
0 to 1,500
1,501 to 3,000
3,001 to 4,500
Over 4,500
MILES
0 3 6
0 4.83 9.6
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SANDAG

MOBILITY 2030 (Figure 1.4) looks into the future to deliver a new transportation vision. It focuses on providing real-time, competitive travel choices during rush hours when most of our traffic congestion occurs. Since much of this demand is driven by the need to commute to and from work and school, the Plan looks at incentives for encouraging alternative commuter travel choices. This includes making it more convenient, fast, and safe to ride transit, carpool, or vanpool during peak hours, or bike or walk to work or school. In our fast-paced world, saving time is a very real and powerful incentive for encouraging these more sustainable travel choices.

The Plan focuses on providing real-time, competitive travel choices during rush hours when most of our traffic congestion occurs.

Regional Transit Vision

MOBILITY 2030 calls for a network of fast, flexible, reliable, safe, and convenient transit services that connect us to the region's major employment and activity centers. Other proposed services showcase the integration of public transportation and local land uses, a central theme of MOBILITY 2030. The new routes operate at higher speeds, averaging 40 miles per hour for regional services and 25 miles per hour for corridor services.

In our local communities, transit stations must be integrated into the activity centers. These areas will be pedestrian- and bicycle-friendly and serve as pleasant walk and wait environments for customers.

There is particular attention to the transit customer in the Plan. The proposed transit services take advantage of a new generation of advance-design vehicles, which have the flexibility of buses and the look and feel of rail. These low-floor vehicles along with smart fare cards allow for easier and speedier boarding. Upgraded stations and real-time information will let patrons know when the next vehicle will be arriving.

Integrating Transit and Roadways

Competitive transit service must be able to operate in congestion-free lanes. The Plan includes an extensive network of Managed/HOV lanes on the highway system designed to accommodate transit services as well as carpools, vanpools, and fee-paying patrons (similar to I-15 FasTrak™ where fees fund transit services in the I-15 corridor). On arterials, the Plan includes funding for transit priority treatments, and regional funding to help complete regionally significant arterials. The Plan also includes major transit capital projects, such as transitways, double tracking, direct access ramps, and grade separations, and provides operational funding for the expanded regional transit system.

The Plan includes an extensive network of Managed/HOV lanes on the highway system designed to accommodate transit services as well as carpools, vanpools, and fee-paying patrons. These same lanes also could be used in the off-peak for goods movement.

Systems Management helps get the most efficiency out of our existing system, makes travel services more reliable, convenient, and safe, and reduces traffic delays caused by accidents and incidents.

Systems Management: Making Better Use of What We Have

Billions of dollars have already been invested in roads and transit in the San Diego region. We need to maximize the return on this significant investment through better management and more efficient operation of the existing networks. A wide range of systems management strategies totaling more than a half billion dollars is included in the Plan. Systems Management helps get the most efficiency out of our existing system, makes travel services more reliable, convenient, and safe, and reduces traffic delays caused by accidents and incidents.

Freeway Service Patrol

Specific programs and projects include expanding the Freeway Service Patrol (FSP), roving tow trucks that today patrol 204 miles of the region's highways during rush hours to assist stranded motorists whose vehicles break down or run out of fuel. By removing disabled vehicles from the roadway quickly, the FSP has helped ease traffic congestion caused by minor incidents.

HOT Lanes

MOBILITY 2030 also includes plans for "HOT lanes" on our major north-south freeways, including Interstates 5, 15, and 805. HOT (high occupancy toll) lanes are limited access lanes in which carpools, vanpools, and buses have first priority and travel for free, while other vehicles gain access by paying a fee. The lanes are managed through variable pricing to maintain free flow conditions even during rush hours, and revenues are used to support transportation improvements within the corridor.

The expansion of HOT lanes builds upon the success of the I-15 FasTrak™ program, which has been operating since 1996 on the I-15 Express Lanes from the I-15/SR 163 junction to SR 56. The net revenues generated by the program currently fund the Inland Breeze express bus service in the corridor.

New Technologies

The cornerstone of the region's new technology strategy is the development of the Regional Intermodal Network that interconnects all of the region's local transportation management centers.

The cornerstone of the region's new technology strategy is the development of the Regional Intermodal Network that interconnects all of the region's local transportation management centers.

- *Freeway Management* – Installs loop detectors, cameras, communications, and new computer hardware and software to improve incident detection and clear accidents, and coordinate freeway and arterial operations.

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
PACIFIC OCEAN
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 1.4
2030
MOBILITY NETWORK
April 2003
Transit
Managed/HOV Lanes
General Purpose Lanes
Freeway Connectors
HOV Connectors
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

- *Arterial Management* – Provides new hardware and software to local jurisdictions to improve traffic signal timing, optimize traffic flow on regional arterials, and coordinate signals with freeway ramps, bus rapid transit service, and rail crossings.

- *Transit Management* – Provides new in-vehicle equipment and computer hardware and software to improve route planning, scheduling, and on-time performance.

- *Traveler Information/Performance Monitoring* – The real-time data collected from the freeway, arterial, and transit systems will be provided to travelers so that they can better plan the time and path of their trips.

Demand Management: Taking the Pressure Off the System

Steps to reduce peak period travel or change when and how people travel will become increasingly important in the future. Demand Management focuses on encouraging alternatives to driving alone and minimizing demand on the transportation system during peak periods.

Demand Management focuses on encouraging alternatives to driving alone and minimizing demand on the transportation system during peak periods.

The strategies in the Plan to manage demand are not all new. Since 1995, SANDAG has operated a regional transportation demand management program called RideLink. Programs offered through RideLink include a regional vanpool program, a regional bike locker program, and a regional subsidy program to provide start-up funds to employers to provide their employees with financial incentives to try new ways to commute. New emphasis is on encouraging teleworking and flexible work hours to help manage peak demand.

HOW DO WE IMPLEMENT THE PLAN?

Implementing MOBILITY 2030 requires close cooperation and coordination among all transportation agencies, local jurisdictions, and the traveling public. The Plan relies on efficient and more cost-effective use of our existing transportation funds and expanding sources of transportation revenues to fund the proposed improvements.

A new regional approach to transportation planning and project implementation is underway. SB 1703, when it became law in January 2003, put under one roof all of the responsibilities and roles of SANDAG, and many of the transit functions of both the San Diego Metropolitan and North County Transit Development Boards. The law enables local mayors, council members, and county supervisors in this region to streamline transportation decision-making. In essence, all regional transportation planning, money allocation, project development, and construction, especially in the public transit arena, are now the responsibility of a new consolidated regional agency.

Critical to the implementation of MOBILITY 2030 is providing sufficient financial resources to fund the Plan's proposed improvements.

The new law will help local officials get critical transportation projects completed across jurisdictional boundaries. Policy decisions about the future of public transit and how buses, trolleys, and rail projects connect with travel on local roads and highways can be better integrated into the Regional Transportation Plan.

Funding and Financial Scenarios

Critical to the implementation of MOBILITY 2030 is providing sufficient financial resources to fund the Plan's proposed improvements. MOBILITY 2030 is based upon a "Reasonably Expected Revenue" scenario totaling more than $42 billion for the development, operation, and maintenance of the transportation facilities and services in the Plan. This assumes both current sources of transportation revenue as well as future revenue sources – such as an extension of the local *TransNet* transportation sales tax measure set to expire in 2008. It also assumes attracting additional federal funds for major capital projects, and increases in state and federal gas taxes based on historical trends.

Measuring the Plan's Success

MOBILITY 2030 was developed by examining how different land use and transportation network scenarios meet regional measures of performance. The evaluation of performance measures is the first step in establishing performance standards that will enable us to benchmark our progress toward meeting the Plan's policy goals and objectives.

The Plan significantly reduces roadway congestion compared to a "no build" scenario, slightly lower than even current conditions. Figure 1.5 shows level of service by direction in the year 2000, and Figure 1.6 shows projected level of service by direction in 2030 with the Plan's improvements in place. Transportation performance monitoring will gauge progress in meeting agreed upon performance standards, which will be reported in annual "State of the Commute" reports beginning in FY 2004.

Orange County
San Diego Region
MAP AREA
Riverside County
San Diego County
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
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Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 1.5
2000
MODELED
LEVEL OF SERVICE
April 2003
A to E (HOV Lanes)
A to E (Main Lanes)
F (0 to 2 Hours)
F (> 2 to 4 Hours)
F (> 4 Hours)
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

Orange County
San Diego Region
MAP AREA
Riverside County
San Diego County
Camp Pendleton
Oceanside
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El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 1.6
2030
MOBILITY NETWORK
LEVEL OF SERVICE
April 2003
A to E (HOV Lanes)
A to E (Main Lanes)
F (0 to 2 Hours)
F (> 2 to 4 Hours)
F (> 4 Hours)
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

CHAPTER 2
MOBILITY 2030 VISION

MOBILITY 2030 is San Diego's Regional Transportation Plan – the blueprint to address the mobility challenges created by our region's growth. This long-range Plan contains an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system in the San Diego region through the year 2030. The Plan's vision for transportation supports the region's comprehensive strategy to promote smarter, more sustainable growth.

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MEASURING THE PLAN'S SUCCESS 19
PERFORMANCE MONITORING 25
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WHAT'S THE VISION FOR TRANSPORTATION?

The MOBILITY 2030 vision is to develop a flexible transportation system that focuses on moving people and goods – not just vehicles. The vision is to provide more convenient, fast, and safe travel choices for public transit, ridesharing, walking, biking, private vehicles, and freight. It commits the region to preserve its existing transportation resources and manage the regional transportation system efficiently.

The MOBILITY 2030 vision is to develop a flexible transportation system that focuses on moving people and goods – not just vehicles.

At the core of MOBILITY 2030 are seven policy goals:

- **Mobility** – Improve the mobility of people and freight
- **Accessibility** – Improve accessibility to major employment and other regional activity centers
- **Reliability** – Improve the reliability and safety of the transportation system
- **Efficiency** – Maximize the efficiency of the existing and future transportation system
- **Livability** – Promote livable communities
- **Sustainability** – Minimize effects on the environment
- **Equity** – Ensure an equitable distribution of the benefits among various demographic and user groups

While all goals are considered interrelated and important, Mobility is considered the Plan's highest goal. Identified in Table 2.1 are policy objectives that will help the region achieve the Plan's goals.

MEASURING THE PLAN'S SUCCESS

MOBILITY 2030 was developed by examining how different land use and transportation network scenarios meet regional measures of performance. These performance measures correspond to the Plan's seven policy goals: Mobility, Accessibility, Reliability, Efficiency, Livability, Sustainability, and Equity.

TABLE 2.1—POLICY OBJECTIVES

GOAL	POLICY OBJECTIVES
Mobility	*No One Size Fits All* – Tailor transportation modal improvements to reflect supporting land uses in major travel corridors
	The Most Bang for the Buck – Make the Regionally Significant Transportation Network the highest priority for regional transportation funding
	Move People and Goods, Not Just Vehicles – Minimize drive alone travel by making it fast, convenient, and safe to carpool, vanpool, ride transit, walk, and bike, and improve goods movement
	Better Manage Congestion – Better respond to traffic congestion through greater emphasis on the Congestion Management Program
Accessibility	*Boost Transit Ridership* – Achieve a double-digit transit mode share during peak periods, with competitive transit travel times to major job centers
	Let's Walk and Bike – Encourage walkability and better bicycle access within our local communities
Reliability	*Inform Travelers* – Apply new technologies and management strategies to make travel services more reliable, convenient, and safe, and to reduce non-recurrent congestion
Efficiency	*What Gets Measured Gets Managed* – Measure the performance of the regional transportation system on a regular basis and manage its efficiency
	Relieve the Pressure – Develop cost-effective, voluntary incentive programs for major employers, schools, and residential areas with a goal of reducing peak period travel demand by at least five percent by 2030
Livability	*Put Transit Where It Works* – Focus transit improvements in areas with compatible land uses that support an efficient transit system
	Smart Growth Carrots – Use regional transportation funding as an incentive for smarter land uses
Sustainability	*Discourage Sprawl* – Focus roadway and transit improvements in urban/suburban areas, away from the region's rural areas
	Think Before You Build – Evaluate all reasonable non-capital transportation improvement strategies before pursuing major expansions to roadway or fixed guideway capacity
Equity	*Play Fair* – Provide equitable levels of transportation services for low-income, minority, and elderly and disabled persons

The performance measures for the MOBILITY 2030 land use plan and transportation network establish the performance against which we will benchmark our progress toward meeting the Plan's policy goals and objectives. Table 2.2 compares MOBILITY 2030 with current conditions (year 2000) and with our projected population and employment growth in 2030 if there were no additional expansion of the regional transportation system ("no build").

The "no build" scenario is not meant to depict the real world – investments in the transportation system would be made over time to serve the region's growing population and employment. Instead, the analysis helps isolate the effect of future growth in population and employment on the transportation system's performance as well as the effect of the Plan's improvements.

MOBILITY 2030 maintains or improves average travel times and travel speeds in the region (measures of Mobility) compared to the 2030 growth trend. Average work trip travel times are one minute longer than current conditions, even with one million more people and a half-million more jobs in 2030. Commuters using the extensive Managed/HOV lane system will benefit from the highest average speeds.

MOBILITY 2030 maintains or improves average travel times and travel speeds in the region, and produces dramatic decreases in roadway congestion.

Compared to the "no build" scenario, MOBILITY 2030 produces dramatic decreases in roadway congestion (a measure of Reliability), slightly lower than even current conditions. Figure 2.1 shows level of service in 2030 with the Plan's improvements. While the Plan performs well in measures of Accessibility compared to the "no build" case, as the region grows, there would be smaller percentages of work/school trips accessible within 30 minutes and non-work trips accessible within 15 minutes compared to current conditions. Under measures of Livability, the transit work trip mode share is 10 percent, compared to five percent under current conditions and four percent under "no build." Other Livability measures under the Plan are slightly better or about the same as current conditions and better than the 2030 trend.

The significant expansion of regional transit services under MOBILITY 2030 will result in a dramatic increase in transit ridership.

Under Sustainability, the Plan's results are mixed. The significant expansion of regional transit services will result in a dramatic increase in transit ridership; daily transit passenger miles (5.2 million) are more than double the miles under the "no build" scenario and are tripled compared to current conditions. Yet, the Plan's roadway improvements, including the planned Managed/HOV system and completion of the freeway network, will result in a 50 percent increase in daily vehicle miles of travel (VMT) compared to current conditions (112.2 million compared to 74.7 million). In part, this increase in VMT is a result of the region's growth in population and employment. Compared to the 2030 growth trend, VMT under MOBILITY 2030 is only two percent higher. Fuel consumption follows the same trends as VMT.

TABLE 2.2—COMPARISON OF PERFORMANCE MEASURES

MOBILITY	CURRENT (2000)	"NO BUILD" (2030)	MOBILITY 2030
➢ Average work trip travel time	24 min.	28 min.	25 min.
➢ Average daily travel time	15 min.	16 min.	15 min.
➢ Average work trip travel speed by mode			
o Auto	29 mph	22 mph	28 mph
o Carpool	31 mph	23 mph	34 mph
o Transit	10 mph	10 mph	14 mph
ACCESSIBILITY			
➢ Work/school trips within 30 minutes	71%	60%	67%
➢ Non-work trips within 15 minutes	69%	65%	66%
RELIABILITY			
➢ Daily accidents/fatalities	88	129	130
➢ Congested peak period travel conditions	29%	45%	25%
➢ Congested daily travel conditions	20%	38%	17%
EFFICIENCY			
➢ Out of pocket user costs	$1.70/trip	$1.62/trip	$1.75/trip
➢ Total 30-year public and private travel costs	$1.80/trip	$1.66/trip	$1.88/trip
LIVABILITY			
➢ Homes within 1/2 mile of a transit stop	63%	58%	63%
➢ Jobs within 1/4 mile of a transit stop	39%	36%	45%
➢ Work trip mode split			
o Drive alone	78%	79%	74%
o Carpool	12%	12%	12%
o Transit	5%	4%	10%
o Bike/Walk/Other	5%	5%	4%
SUSTAINABILITY			
➢ Smog forming pollutants	241 tons	44 tons	43 tons
➢ On-road fuel consumption (gallons)	3.9 million	5.8 million	5.9 million
➢ Daily vehicle miles traveled	74.7 million	109.7 million	112.2 million
➢ Daily transit passenger miles	1.7 million	2.0 million	5.2 million
➢ Constrained lands consumed for new transportation infrastructure	N/A	N/A	138 acres
EQUITY			
Comparison of low income vs. non-low income and minority vs. non-minority:			
➢ Average Travel Time (minutes)			
o Low income vs. non-low income	N/A	16 vs. 16 minutes	16 vs. 15 minutes
o Minority vs. non-minority	N/A	15 vs. 16 minutes	15 vs. 15 minutes
➢ Work/school trips within 30 minutes			
o Low income vs. non-low income	N/A	64% vs. 59%	68% vs. 67%
o Minority vs. non-minority	N/A	61% vs. 59%	69% vs. 66%
➢ Non-work trips within 15 minutes			
o Low income vs. non-low income	N/A	61% vs. 66%	60% vs. 66%
o Minority vs. non-minority	N/A	67% vs. 64%	67% vs. 65%

SOURCE: SANDAG

Orange County
San Diego Region
MAP AREA
Riverside County
San Diego County
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 2.1
2030
MOBILITY NETWORK
LEVEL OF SERVICE
April 2003
A to E (HOV Lanes)
A to E (Main Lanes)
F (0 to 2 Hours)
F (> 2 to 4 Hours)
F (> 4 Hours)
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

Air quality emissions in 2030 are dramatically reduced compared to current conditions, reflecting improvements in fuels and emissions technologies over time. The differences in measures of Equity – comparisons of low income vs. non-low income and minority vs. non-minority average travel times and work and non-work trip duration – remain relatively unchanged.

Air quality emissions in 2030 are dramatically reduced compared to current conditions, reflecting improvements in fuels and emissions technologies over time.

PERFORMANCE MONITORING

The success of MOBILITY 2030 will be measured through a performance monitoring system that tracks how well our transportation system is functioning and identifies opportunities for near-term improvements. This system of performance monitoring also is useful for refining the decision-making processes that are used to select individual transportation projects and investments. Ongoing monitoring can help assess the impacts of planned improvements to ensure that the region's investment strategy is supporting regional policies.

Ongoing monitoring can help assess the impacts of planned improvements to ensure that the region's investment strategy is supporting regional policies.

Significant amounts of data are already collected by transportation providers, including the California Department of Transportation (Caltrans), the two transit districts, the cities and county, and other agencies. Caltrans and local jurisdictions collect traffic volume counts on roadways on a regular basis. Average daily traffic, vehicle occupancy and classification, and other traffic information are available via SANDAG's on-line Regional Information System. Transit ridership data, including individual route reports, on-time performance, and other information, also are available on-line through SANDAG.

The challenge of a regional performance monitoring system is to evaluate these diverse data and provide ongoing reporting of the transportation system's performance in an easy-to-understand format for decision-makers and the general public.

Automating our Systems

The Systems Management investments described in more detail in Chapter 7 of MOBILITY 2030 will ultimately develop an automated system that tracks how well our multimodal transportation system is working. Currently, the region's freeway network has the most developed automated monitoring system.

A state-of-the-art freeway monitoring system called the Performance Measurement System (PeMS), developed jointly by the University of California, Berkeley and Caltrans, is being launched in the San Diego region. PeMS uses automated volume and speed data from detectors imbedded in the roadway pavement and accident data collected by the California Highway Patrol to enable better management of regional highways.

A near-term goal is to expand this reporting system beyond highways to major arterials and regional transit services. Advanced technologies such as the "regional arterial management system" and the "smart card" and "next vehicle" regional transit applications will help collect the data needed to expand PeMS. Performance monitoring will continue to rely on manually collected and reported data while the more automated systems are being developed.

Travel Time Monitoring

Table 2.3 compares peak period average door-to-door travel times in seven corridors by carpool, transit (both walk access and auto access), and auto for year 2000 conditions, the "no build" scenario, and under MOBILITY 2030. In most corridors, MOBILITY 2030 improves carpool and transit travel times to the region's major employment centers. From Chula Vista to Sorrento Valley, for example, traveling by carpool would take 33 minutes in 2030 via the I-805 Managed Lanes, an improvement over the 44-minute trip in 2000 (without the lanes and assuming no incidents). Expanding transit service on the I-15 Managed Lanes would significantly reduce the average transit travel time from Escondido to Kearny Mesa (from 117 minutes in 2000 to 51 minutes in 2030 with walk access, and from 132 minutes in 2000 to 48 minutes in 2030 with auto access).

It is important to note that the projected travel times do not take into account the effects of major incidents or other non-recurring congestion. The Plan's Managed/HOV facilities will be operated at free-flow conditions – providing better travel time reliability for transit, carpools, vanpools, and other users of the lanes – and reducing the likelihood of incidents on these facilities.

Regular travel time monitoring is important to track the effectiveness of the Plan's investments in the regional roadway and transit networks. In 2002, SANDAG began implementing a monitoring program to track and compare auto and transit trip travel times within representative travel corridors in the region.

Regular travel time monitoring is important to track the effectiveness of the Plan's investments in the regional roadway and transit networks. In 2002, SANDAG began implementing a monitoring program to track and compare auto and transit trip travel times within representative travel corridors in the region. Program participants are being asked to monitor their door-to-door travel times, including transfers and wait times (if via transit) and ramp metering delays (if via auto).

An initial pilot study was completed in Spring 2002, and the regular monitoring program began in Fall 2002. Results from the Fall 2002 study showed that morning peak period travel to downtown San Diego averaged about 27 minutes from San Ysidro and El Cajon and about 62 minutes from Oceanside. Afternoon peak commutes tended to be longer. Transit trips, as expected, were longer than auto trips along these same corridors. Commuters sampled spent between 65 percent and 70 percent of their travel time on freeways. Global positioning systems (GPS) also were used to measure travel time, speed, and the spreading of the peak commute period along segments of four congested corridors (I-5, I-8, I-15, and I-805). Average speeds in the morning commute ranged from 16 mph on the I-15 corridor to 54 mph on the I-805 corridor.

TABLE 2.3—PEAK PERIOD AVERAGE TRAVEL TIMES BY CORRIDOR[1] (IN MINUTES)

	CURRENT (2000)	"NO BUILD" (2030)	MOBILITY 2030
Oceanside to Downtown San Diego			
➢ Carpool	66	97	49
➢ Transit (walk access)	91	91	81
➢ Transit (auto access)	72	73	66
➢ Auto	73	102	69
Escondido to Kearny Mesa			
➢ Carpool	34	66	30
➢ Transit (walk access)	117	165	51
➢ Transit (auto access)	132	162	48
➢ Auto	40	87	45
Escondido to Carlsbad			
➢ Carpool	24	38	26
➢ Transit (walk access)	75	93	50
➢ Transit (auto access)	72	90	44
➢ Auto	28	41	31
El Cajon to Downtown San Diego			
➢ Carpool	33	38	28
➢ Transit (walk access)	84	84	62
➢ Transit (auto access)	60	61	56
➢ Auto	35	40	36
Mid-City San Diego to Sorrento Valley			
➢ Carpool	29	43	24
➢ Transit (walk access)	89	100	39
➢ Transit (auto access)	67	76	38
➢ Auto	32	47	32
Chula Vista to Sorrento Valley			
➢ Carpool	44	66	33
➢ Transit (walk access)	103	106	66
➢ Transit (auto access)	88	89	55
➢ Auto	47	69	43
San Ysidro to Downtown San Diego			
➢ Carpool	30	39	28
➢ Transit (walk access)	46	46	46
➢ Transit (auto access)	44	44	44
➢ Auto	31	40	32

[1] Travel times are door-to-door.

SOURCE: SANDAG

Customer Feedback

In addition to changes in traffic and travel times, the Plan recognizes the importance of ongoing customer satisfaction surveys to identify needed improvements from a user's perspective. User and non-user transit surveys and other transportation survey research will continue to be conducted. SANDAG's FY 2003 Overall Work Program includes a resident public opinion survey on transit as well as completion of the regular onboard transit passenger survey.

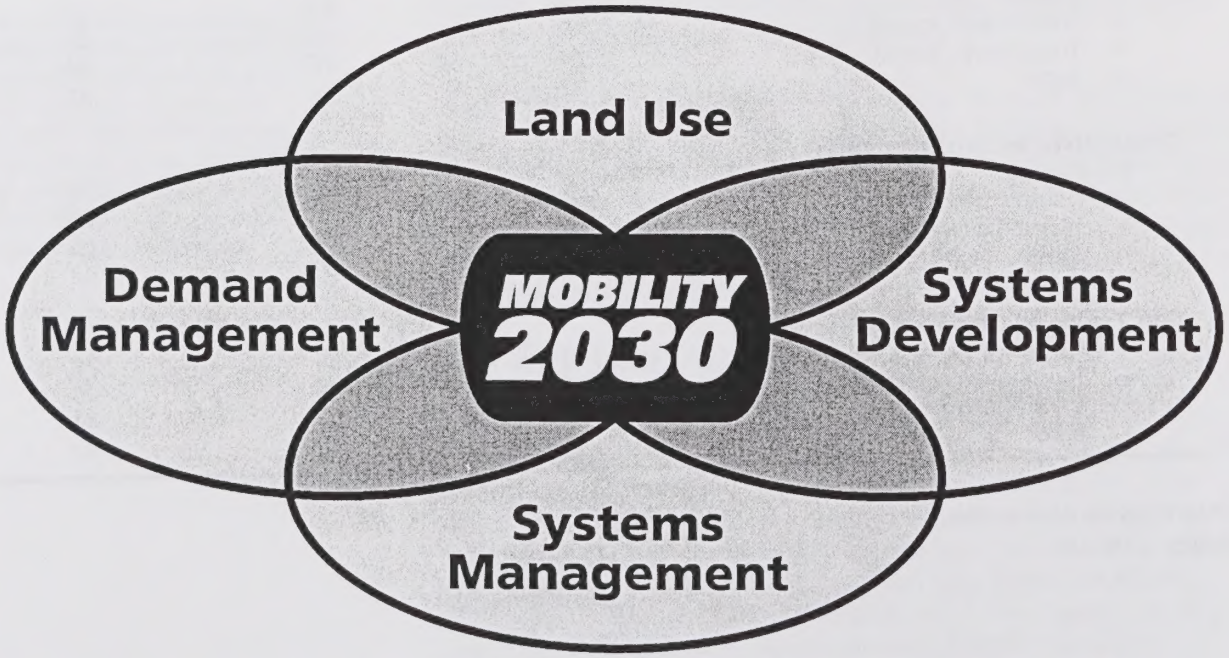
Together the system information and user perspective will be reported in annual "State of the Commute" reports in upcoming years. The first "State of the Commute" report will be available in FY 2004.

A PLAN FOR BETTER MOBILITY

Land Use, Systems Development, Systems Management, and Demand Management each have a unique, yet interdependent, role in improving mobility and travel in the San Diego region through the year 2030.

MOBILITY 2030 is developed around four main components: Land Use, Systems Development, Systems Management, and Demand Management. Each component has a unique, yet interdependent, role in improving mobility and travel in the San Diego region through the year 2030. The relationship among the four components of mobility and the Plan itself is illustrated in Figure 2.2. Following chapters highlight the projects, programs, and strategies included in the Plan that address each component.

FIGURE 2.2—FOUR COMPONENTS OF MOBILITY



CHAPTER 3
REGIONAL TRENDS THROUGH 2030: HOW ARE WE GROWING AND CHANGING?

DEMOGRAPHICS

The San Diego region has resumed its familiar pattern of growth. Since the recession ended in the mid-1990s, population growth in the region has averaged about 50,000 persons per year. The current annual growth rate of about two percent is higher than that of the nation as a whole; although for the entire 1990s we grew slower than the nation. SANDAG's 2030 Regional Growth Forecast projects that between 2000 and 2030 the region will add about one million more people, 340,000 new homes, and a half-million new jobs.

In spite of those figures, our growth rate is actually slowing, and that trend will continue. During the late 1980s the region was adding as many as 90,000 persons per year, an annual growth rate of three percent. By the mid-2020s, our growth rate will fall below the national rate of about one percent. Currently, Riverside County, Imperial County, and Tijuana are all growing at faster rates than San Diego.

All population growth comes from just two sources: natural increase (births minus deaths), and net migration (people who move here minus those who move away). Migration consists of two components: domestic migration and foreign immigration. The amount of legal foreign immigration is controlled by the federal government, and has remained fairly constant over the past decade. No major change in immigration levels is expected in the foreseeable future. Domestic migration — people moving to and from other parts of the state or the nation — fluctuates each year, usually based on the condition of the local economy. During the recession years in the early 1990s, for example, more people left the region to search for economic opportunities elsewhere. Figure 3.1 compares the region's historic and future growth rates to those of the nation.

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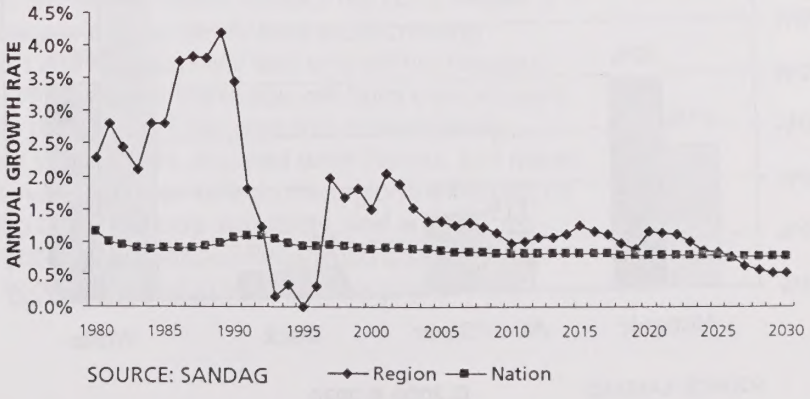
SANDAG projects that between 2000 and 2030 the region will add about one million more people, 340,000 new homes, and a half-million new jobs.

FIGURE 3.1—POPULATION GROWTH RATE



SOURCE: SANDAG

The main reason our growth rate is slowing is a continuing decline in fertility rates (the average number of children born to each woman). Recent data show that this is occurring across most ethnic groups, and that the sharpest drop is seen among the Hispanic population.

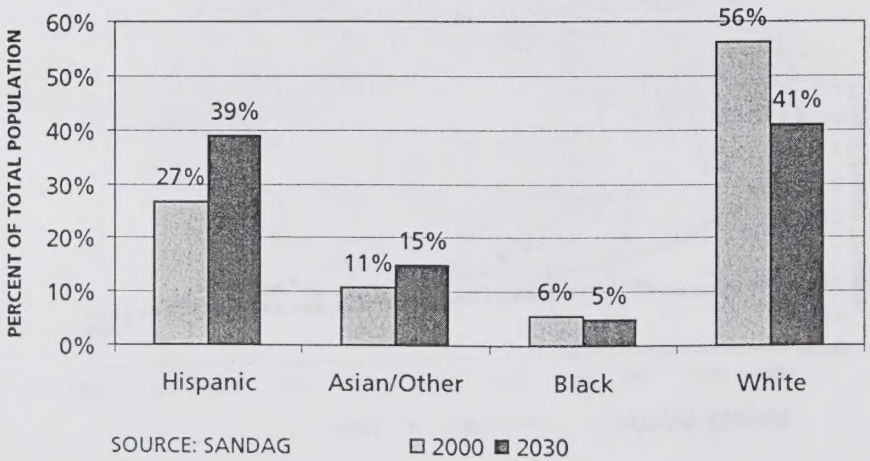
As the region grows over the next 30 years, some basic demographic characteristics of the population will change. As a group, we will become both older and more ethnically diverse.

As the region grows over the next 30 years, some basic demographic characteristics of the population will change. As a group, we will become both older and more ethnically diverse. The increase in diversity is the result of the various ethnic groups growing at different rates. While the region as a whole is expected to grow by about 38 percent by 2030, the Hispanic and the Asian/Other groups will each almost double in size during that time period. The Black population will grow by 30 percent, slightly below the regional rate. In contrast, the non-Hispanic White population will increase by only three percent. This pattern is similar to what we have been seeing for the last couple of decades.

Figure 3.2 shows that by 2030 the Hispanic proportion of the region's population will rise from today's 27 percent to 39 percent. The Asian/Other group will increase to 15 percent of the total population from its current 11 percent. The Black population will stay relatively constant at about five percent or six percent. The biggest change will be seen in the non-Hispanic White group, whose portion of the total population will drop from today's 56 percent down to 41 percent. When their share falls below 50 percent — probably around 2012 — there will be no ethnic majority in the region. Statewide, that is true today. The 2000 Census found that just 47 percent of Californians are non-Hispanic Whites.

In addition to ethnic changes, our region also is aging. Almost 30 percent of the region's population is baby boomers, the huge group of people born between 1946 and 1964. Their presence will help to raise the median age in the region from today's 32.4 years old to 36 years old in 2030 — an increase of 14 percent. By 2030, the number of people age 65 and older will increase by 134 percent. Fully 19 percent of the region's population will be in that age group then, which is a higher percentage than is seen today in the state of Florida.

FIGURE 3.2—THE REGION'S CHANGING ETHNIC COMPOSITION



SOURCE: SANDAG

EMPLOYMENT & HOUSING

Job growth is directly linked to population growth. When there is an abundance of jobs in a region, domestic in-migration increases as people move to take advantage of the economic opportunities. SANDAG's 2030 Regional Growth Forecast predicts that the region will add just over 500,000 new jobs by 2030. More than half of those jobs — about 62 percent — will be created during the first 15 years of the forecast period.

Jobs will be created across all industry sectors. However, the largest gains will be seen in the relatively low paying Services sector, which is expected to grow by almost 60 percent. We are already beginning to see the impacts of the disparity between local wages and housing costs. More and more people are choosing to keep their jobs within the region, but move to more affordable homes in Riverside County and northern Baja California, Mexico.

More and more people are choosing to keep their jobs within the region, but move to more affordable homes in Riverside County and northern Baja California.

This interregional commuting will continue to increase, and is reflected in the 2030 Regional Growth Forecast. Over the 30-year period, it is estimated that 47,300 more households will have residents living in Riverside or Baja California while working within the San Diego region. Long distance commuting, both interregional and from within the region, has a tremendous impact on our transportation facilities.

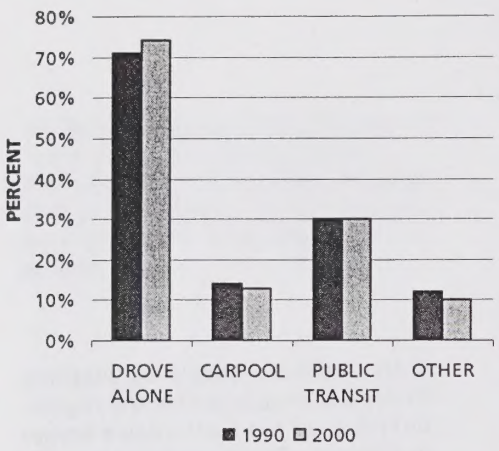
However, increases in interregional commuting will have some dampening effect on local housing demand. Providing homes for an additional one million people over the next 30 years will still require at least 340,000 new housing units within the region. We are running out of large, environmentally acceptable land parcels that are planned for residential use.

Of the 340,000 units the region will build over 30 years, it is expected that more than half will be some sort of multifamily configuration, including stacked flats, attached town homes, and mixed-use projects.

The 2030 Forecast reflects the emphasis on smart growth as the region's future. This is discussed in more detail in Chapter 5. Smart growth is characterized by a more compact, environmentally sensitive pattern of development that seeks to contain urban sprawl and place more housing near job centers, thereby reducing long commutes.

Currently, about 63 percent of the region's housing stock consists of single family units, and about 33 percent are multifamily. (The remaining four percent are mostly mobile homes.) The combination of a scarcity of vacant, developable single family land and increasing congestion on our roads and highways will lead to a shift in housing characteristics. Of the 340,000 units the region will build over 30 years, it is expected that more than half will be some sort of multifamily configuration, including stacked flats, attached town homes, and mixed-use projects. This shift in housing type reflects the region's emphasis on smart growth, providing better housing availability, and an expected shift in housing preferences as the region's population ages. Much of this development will occur as redevelopment of older areas.

FIGURE 3.3—COMMUTING TO WORK – 1990 VS. 2000 CENSUS



SOURCE: U.S. CENSUS

TRAVEL PATTERNS

Travel behavior is influenced by many factors, including demographics, land uses, our lifestyles, the economy, employment locations, and work practices. An understanding of patterns of travel has helped shaped MOBILITY 2030.

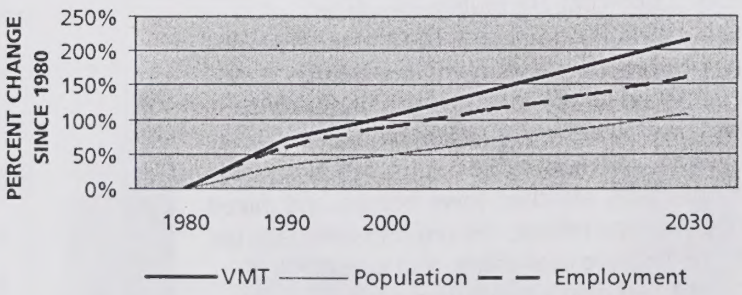
Like most major metropolitan areas around the country, the San Diego region has seen a gradual decline in commuting by carpool and transit in favor of driving alone. Between 1990 and 2000, the percentage of residents who drove alone to work increased, while commuting by all other modes decreased or stayed the same (see Figure 3.3). In part, this shift to solo commuting reflects the increase in two-worker households – which in turn, has increased the need for car trips – and the convenience and flexibility of the personal automobile.

Throughout the 1980s, travel (as measured in vehicle miles traveled or VMT) grew about twice as fast as population, primarily because of growth in two-worker households and longer commute distances. During the 1990s, growth in vehicle miles traveled was 50 percent higher than population growth.

The region faces a large increase in the demand for trip making over time. In 1990, daily travel demand was nine million trips. The region's current population makes an estimated 13.5 million daily trips by some form of motorized travel today. Travel demand is projected to increase to 16 million daily trips by 2030.

Figure 3.4 below compares the percentage change since 1980 in travel (measured in VMT), population, and employment. Growth in travel consistently has outpaced growth in population and employment over the past two decades. This trend is projected to continue through 2030. Projected 2030 vehicle miles traveled are four times higher than 1980 levels. Forecasted population and employment increase by 108 percent and 161 percent, respectively, over the same period.

FIGURE 3.4—GROWTH IN TRAVEL, POPULATION, AND EMPLOYMENT



SOURCE: SANDAG

Many of the region's major facilities are operating at or beyond their capacity – the result of dramatic increases in motorized travel and limited financial capacity to keep pace with demand. Traffic congestion in urban areas like the San Diego region will generally worsen over time, unless we take actions to directly address travel demand and have options to get people out of their single occupant vehicle, especially during peak travel periods.

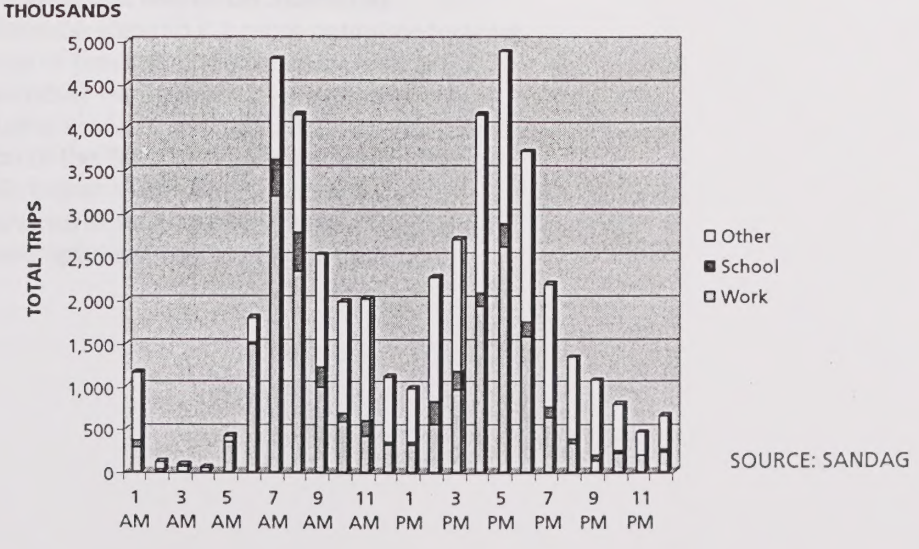
Traffic congestion will generally worsen over time, unless we take actions to directly address travel demand and have options to get people out of their single occupant vehicle.

Of all trips taken by all transportation modes, the average trip length is five miles. Work travel, as measured in vehicle miles, comprises 27 percent of all highway travel, while non-work travel makes up 73 percent of travel on our highways. Work trips tend to be longer than non-work trips; today's average work trip length is 10.5 miles compared to 4.5 miles for the non-work trip.

Figure 3.5 shows average daily trips by hour of the day and trip purpose. Work trips make up the largest portion of travel demand during the morning and afternoon peak periods, although there are large shares of other trips (e.g., shopping, recreation, etc.), particularly in the afternoon hours. Morning trips tend to be commute trips, going directly from home to work. Evening trips involve a greater variety of origins and destinations, causing the evening peak period to spread out over a longer period of time. School trips constitute the smallest shares throughout the day.

It is the peaking of travel demand during short periods of the day that strains the regional transportation system, which has excess capacity during off-peak periods. Despite increases in travel demand, traffic congestion in the San Diego region is not as severe as other areas around the country. Based on Census 2000, the San Diego metropolitan area ranks 22nd in population and 28th in average travel time. The average commute time in the region grew by only three minutes between 1990 and 2000, indicating that people make personal adjustments to keep commute times reasonable.

FIGURE 3.5—AVERAGE DAILY TRIPS BY HOUR AND TRIP PURPOSE



SOURCE: SANDAG

CHAPTER 4
FINANCIAL STRATEGIES: PAYING OUR WAY

The financial analysis of the recommended transportation improvements of MOBILITY 2030 focuses on transit, highway, and local street and road improvements (Systems Development) as well as the Land Use and Systems and Demand Management components. The capital, operating, maintenance, and rehabilitation costs of the region's transportation systems over the next 29 years are compared against forecasts of available revenues. Actions are recommended to obtain the revenues necessary to implement the improvements recommended in the Plan. The level of improvements possible under three alternative revenue scenarios is included as part of the financial analysis.

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REVENUE SCENARIOS

Three basic revenue forecast scenarios have been developed for MOBILITY 2030. A general description of each of the three scenarios is provided below followed by the key assumptions used to develop projections of each of the major revenue sources and a summary of the analysis of total costs and revenues under each scenario.

Three basic revenue forecast scenarios have been developed for MOBILITY 2030 – Revenue Constrained (required by state and federal regulations), Reasonably Expected Revenue (on which the Plan is based), and an Unconstrained Revenue scenario.

Revenue Constrained Scenario

State and federal planning regulations require the development of a revenue constrained plan. Such a plan is based only on current sources and levels of federal, state, and local transportation revenue projected out to the year 2030. This scenario includes federal and state formula funds as well as federal and state discretionary funds for existing projects. However, future increases in federal and state gas taxes, the extension of the *TransNet* sales tax program beyond its current 2008 expiration date, or the establishment of other new revenue sources are not included in the revenue constrained scenario.

Reasonably Expected Revenue Scenario

The Reasonably Expected Revenue scenario is a more optimistic forecast, which includes all the sources of funding in the revenue constrained forecast, plus additional sources of transportation revenue that are reasonably expected to become available through 2030. The additional sources include an extension of the *TransNet* ½ percent transportation local sales tax through 2030, higher levels of state and federal discretionary funds, and increases in state and federal gas taxes based on historical trends. This more optimistic scenario is the basis for MOBILITY 2030.

Unconstrained Revenue Scenario

Based on the analysis of travel demand in the region to 2030 and beyond, needs have been identified for transportation improvements and associated operations, maintenance, and rehabilitation, requiring funding above and beyond the levels assumed for the Reasonably Expected Revenue scenario. This third unconstrained scenario includes additional revenue options to fully fund the desired list of projects beyond 2030. This scenario identifies a set of potential revenue sources, the estimated revenue to be generated, and the implementation steps required.

Revenue Assumptions

The basic assumptions made for each major revenue source included in the financial analysis for MOBILITY 2030 are provided below. Any differences in the assumptions made for the more optimistic Reasonably Expected Revenue scenario as compared to the Revenue Constrained scenario are described. All revenues have been deescalated to 2002 dollars based on the 3.4 percent per year cost escalation factor adopted by the California Transportation Commission (CTC) for the 2002 State Transportation Improvement Program (STIP) Fund Estimate. For flexible funding sources that can be spent for a variety of purposes, the amounts assumed for highway, transit, and other purposes under these alternatives also are summarized.

Local Revenues

- ***TransNet* ½ Percent Local Sales Tax Revenues** - were assumed to increase each year over the $193 million received in FY 2002 based on the growth in taxable retail sales as projected by the SANDAG Demographic and Economic Forecasting Model (DEFM). The amounts shown for the Revenue Constrained scenario represent the funds estimated to be available through the end of the current *TransNet* Program in 2008. The net revenues shown reflect the estimated sales tax receipts plus estimated interest earnings less current debt service payments on bonds issued to date. Revenues were assumed to be allocated based on the voter-approved *TransNet* Ordinance and Expenditure Plan (one-third each to highways, transit, and local streets and roads).

  For the Reasonably Expected Revenue scenario, the *TransNet* Program was assumed to be extended through 2030. Revenues from FY 2009 to FY 2030 are assumed to be flexible. For planning purposes, 25 percent of the future *TransNet* funds were assumed for local streets and roads, bicycle and pedestrian facilities, and other potential purposes, 35 percent for highway/HOV purposes, 25 percent for transit operations, and 15 percent for transit capital purposes.

- **Transportation Development Act (TDA) ¼ Percent Sales Tax Funds** - were assumed to grow from the $100 million received in FY 2002 in the same manner as *TransNet* funds since TDA funds also are based on growth in the sales tax. The total TDA funds projected were reduced by 10 percent to account for administrative, planning, and bicycle project deductions as provided in state law. TDA funds may be used for transit operating or capital purposes, but are not eligible for use on non-transit related highway or local street and road improvements. For planning purposes, it was assumed that 10 percent would be used to match capital projects and the balance would be available for operations.
- **Local Street and Road Gas Tax Subventions** - The current level of gas tax subventions to the Cities and the County of San Diego for local street and road purposes was assumed to continue to be available. (Actual receipts totaled $85.5 million in FY 2000.) The total of these revenues for the region was increased each year based on the estimated growth rate in the number of gallons of fuel consumed in the region based on Caltrans projections reflecting future fuel efficiency, vehicle miles traveled (VMT), and vehicle fleet mix projections (i.e., gas, diesel, electric, etc.). The total estimated gas tax was deescalated to 2002 dollars.
- **Local Street and Road General Fund and Other Revenues** – Based on information provided in the State Controller annual reports for local street and road expenditures and revenues, the average amount of general fund contributions and other revenues (including fines and forfeitures, interest earnings, and other miscellaneous revenue sources) used for local street and road expenditures in recent years was assumed to continue. The 10-year average for local general fund contributions to local street improvements regionwide is $47.3 million per year, while other revenues have averaged $102.7 million per year. These revenues were increased by 3 percent each year and deescalated to 2002 dollars.
- **Toll Road Funding** – the funding derived from debt financing backed by future toll revenues has been assumed to be available in the same time periods as the construction for the major phases of the SR 125 and SR 241 toll road projects.

State Revenues

- **State Transportation Improvement Program (STIP) Funds** – were based on the amounts available for new programming through FY 2009 as included in the 2002 STIP Fund Estimate. Beyond 2009, STIP funds were assumed to increase at 3 percent per year based on growth rates in gas tax receipts, truck weight fees, and federal funds flowing into the State Highway Account. In addition, future STIP revenues were increased to reflect the impact of the passage of Proposition 42, which will increase STIP revenues for 2009 and beyond.

Based on the provisions of SB 45, the San Diego region should continue to receive at least a minimum formula "County Share" level of statewide levels and a comparable portion of the STIP Interregional program funds over time as well. The total STIP funds assumed include revenue from both the Regional and Interregional STIP shares. The STIP funds are flexible and are available for capacity-enhancing highway, transit, and local road capital projects as well as for transportation demand management (TDM) efforts and planning, programming, and monitoring activities. For purposes of the RTP, the STIP funds were assumed to be focused on major highway (65 percent) and transit (30 percent) projects, with 5 percent set aside for regional arterial improvements, TDM, and other purposes.

- **State Transit Assistance (STA) Funds** - were assumed to increase based on the forecasts of growth in the state Public Transportation Account as provided in the 2002 STIP Fund Estimate through FY 2009, and at four percent per year after 2009. In addition, future STA funds were increased to reflect the impact of the passage of Proposition 42, which will increase STA revenues for 2009 and beyond. These funds are available for transit operating and capital purposes only. For planning purposes, these revenues were assumed to be used entirely for transit operations.

- **Traffic Congestion Relief Program (TCRP) Funds** – were assumed to be available for specific projects as provided in state law through FY 2008. Based on the current uncertainty with the state budget and the proposed reductions in TCRP funds, a total of $180 million was cut from the total initially assumed to come from TCRP funds.

- **State Highway Operations, Maintenance, and Rehabilitation Funds** – it was assumed that revenues will be available to meet Caltrans' identified needs for state highway operations and maintenance needs. By state law, these expenditures are given priority over new construction and are funded "off the top" of the State Highway Account before any funding for new construction projects is allocated. The 2002 base year estimates of $23 million per year for operations and administration costs and $50 million per year for maintenance costs were increased at a real growth of one percent per year to reflect a gradual increase in these costs above the rate of inflation as the size of the system to be maintained grows over time. The revenues needed to meet the costs for these purposes as identified by Caltrans have been assumed to be available.

  For state highway rehabilitation needs, funds were assumed to be available through the State Highway Operations and Protection Program (SHOPP) at the current level of $50 million per year, with a two percent per year real growth based on recent trends. Costs for SHOPP-eligible projects were constrained to the estimated funds available for both the Revenue Constrained and Reasonably Expected Revenue scenarios. To the extent estimated needs for SHOPP activities exceed the estimated revenues, the unfunded needs are identified as part of the Unconstrained Revenue scenario.

- **Future State/Federal Gas Tax or Equivalent Revenue Increases** – were assumed for the Reasonably Expected Revenue scenario. Over the last 20 years, the gas tax has been increased an average of 1.2 cents per year. While the gas tax level is assumed to remain constant through 2030 for the Revenue Constrained scenario, it is reasonable to assume such an average annual increase in the gas tax (or an equivalent revenue source) in the future for the Reasonably Expected Revenue scenario. For the 29-year period covered by the Plan, this would constitute the equivalent of a 34.8-cent increase in the gas tax over time.

  The passage of Proposition 42 is an example of such an equivalent transportation revenue increase, already generating approximately 40 percent of the total estimated revenues from such a future gas tax equivalent increase. The remaining 60 percent in the total funding generated by a 1.2 cent per year gas tax increase was assumed to be available for regional transportation improvements. Of this total, 65 percent was assumed for highway purposes and 35 percent for transit capital purposes.

Federal Revenues

- **FTA Discretionary (Section 5309) Funds** - were assumed through FY 2007 based on the amounts identified in the Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA) for the Mission Valley East Light Rail Transit (LRT) project and estimates from the pending FFGA for the NCTD Oceanside-Escondido rail project. For FY 2008 and beyond, it was assumed that the region would receive a population-based share of the national Section 5309 levels increased at 4 percent per year. The San Diego region's population is about one percent of the national total. For the Revenue Constrained scenario, a share of discretionary funds equal to 0.5 percent of the national total was assumed, while for the more optimistic Reasonably Expected Revenue scenario, a 1.5 percent share was assumed.

- **FTA Formula (Section 5307 and 5309) Funds** - the Section 5307 formula funds, as well as the rail modernization formula funds under the Section 5309 program, were assumed to grow based on the guaranteed funding levels specified in the federal Transportation Equity Act for the 21st Century (TEA-21) to FY 2003 and at four percent per year thereafter. It was assumed that up to 20 percent of the Section 5307 funds could be made available for operating purposes under the preventative maintenance provisions of TEA-21.

- **Surface Transportation Program (STP) Funds** – the Regional STP fund estimates were based on the current trends in actual annual apportionments and the estimates included in the 2002 STIP Fund Estimate through FY 2009, which included a 20 percent increase in the first year of the new federal reauthorization bill and a 2 percent increase each year thereafter. These funds are flexible and may be used for a wide range of capital projects. For purposes of the RTP, it was assumed that 25 percent of these funds would be set aside for regional arterial improvements or other purposes, 50 percent for highway purposes, and 25 percent for transit purposes.

- **Congestion Mitigation and Air Quality (CMAQ) Funds** – the CMAQ fund estimates were based on the current trends in actual annual apportionments and the estimates included in the 2002 STIP funds estimate through FY 2009, which included a 20 percent increase in the first year of the new federal reauthorization bill and a 2 percent increase each year thereafter. These funds are flexible and may be used for a wide range of capital projects and TDM activities, with the exception of roadway improvements that provide increased capacity for single-occupant vehicles.

  It was assumed that 10 percent of the CMAQ funds would be set-aside for traffic signal coordination or other local purposes. CMAQ funds also may be used for transit operations for the first three years of a new service. It was assumed that 10 percent each year would be available for such operating purposes. In addition, 50 percent of the CMAQ funds were assumed to be available for Managed/HOV lane development purposes and 30 percent for transit capital purposes. It also was assumed that federal regulations would be modified so that the region's CMAQ apportionments would not be reduced as a result of achieving attainment of current air quality standards.

- **Miscellaneous Federal/State/Private/Other Capital Revenues** – there are a variety of smaller annual state and federal programs as well as periodic "demonstration" program funds that provide additional funding for the region's transportation improvements on a semi-regular basis. It was assumed that about $35 million per year would be available from such sources for the Revenue Constrained scenario and a somewhat more optimistic $40 million per year for the Reasonably Expected Revenue scenario. Based on historical trends, it was assumed that five percent of these funds would be used for local street and road or other purposes, while 60 percent of these miscellaneous revenues were assumed for highway purposes and 35 percent for transit capital purposes.

REASONABLY EXPECTED REVENUE SCENARIO ANALYSIS

Based on the more optimistic set of revenue assumptions described above, the Reasonably Expected Revenue scenario provides the financial budget for MOBILITY 2030. A total of nearly $42 billion in revenue through 2030 has been estimated to be available to implement the proposed improvements included in the Plan. A summary of the major revenue sources is provided in Figure 4.1 and Table 4.1.

The assumptions regarding the passage of an extension of the *TransNet* Program through 2030 and the implementation of gradual increases in the state and federal gas taxes (or equivalent revenue sources) comparable to historical increases in these funds over the past 20 years, are critical to the implementation of MOBILITY 2030. Of the total estimated revenues, 19 percent is provided through the *TransNet* extension, 28 percent comes from all other local revenue sources combined, 33 percent from state sources, and 20 percent from federal revenues.

Figure 4.2 and Table 4.2 provide a summary of the $42 billion in expenditures for each of the major project categories proposed to be funded under this scenario. Of the total expenditures through 2030, 37 percent is for transit purposes, 18 percent for Managed/HOV lane improvements, 20 percent for highway purposes, 23 percent for local streets and roads, and two percent for Other (Systems and Demand Management, Land Use, bicycle/pedestrian, and other related efforts).

The costs are broken down for new capital improvements versus operations, maintenance, and rehabilitation expenditures. As the region's transportation system ages, the ongoing costs to maintain our existing infrastructure require a significant share of our future transportation funds. Nearly $17 billion, or 40 percent of the total expenditures, are committed to operating, managing, maintaining, and rehabilitating the region's highway, transit, and local street and road networks.

The major transit, Managed/HOV lane, and highway projects proposed in MOBILITY 2030 are identified in Table 6.2 and Appendix A. The projects and programs included under the Land Use, Systems Management, and Demand Management (including bicycle/pedestrian components) are described in Chapters 6 through 8.

For the local street and road costs, a needs survey was conducted. Each jurisdiction provided information related to its backlog of deferred projects and its 10-year estimate for maintenance, rehabilitation, operations, and new construction needs. These survey data were used as the basis of the street and road cost estimates through 2030. A summary of the survey data is provided in Technical Appendix 1. The estimated street and road costs derived from the survey data were adjusted to fit the revenue available under the Reasonably Expected Revenue scenario.

FIGURE 4.1—MAJOR REVENUE SOURCES/ REASONABLY EXPECTED REVENUE SCENARIO ($42 Billion)

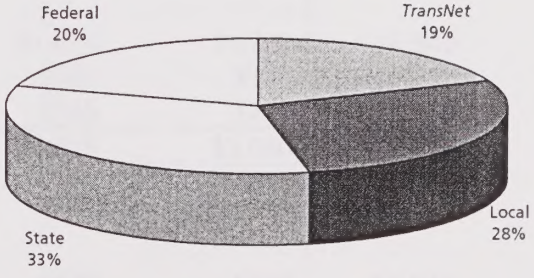


FIGURE 4.2—MAJOR PROJECT EXPENDITURES/REASONABLY EXPECTED REVENUE SCENARIO
($42 Billion)

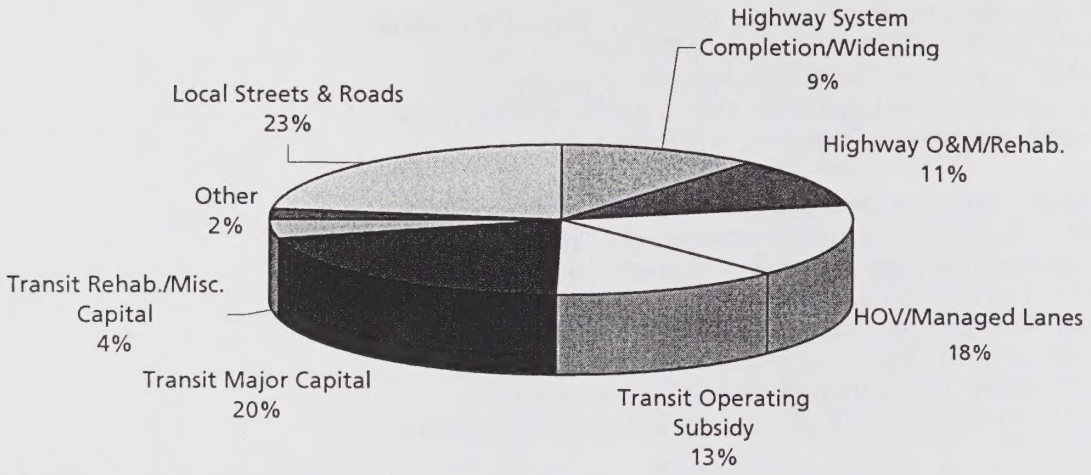


TABLE 4.1—MAJOR REVENUE SOURCES/REASONABLY EXPECTED REVENUE SCENARIO

REVENUE SOURCES	ESTIMATED REVENUE ($ IN MILLIONS)			
	FY 2002-2010	FY 2011-2020	FY 2021-2030	FY 2002-2030
Local				
TransNet (extension assumed through 2030)	$1,470	$2,735	$3,670	$7,875
Transportation Development Act (TDA)	$910	$1,240	$1,660	$3,810
City/County Local Gas Taxes	$760	$745	$650	$2,155
General Fund/Misc. Local Road Funds	$1,330	$1,425	$1,370	$4,125
Toll Road Funding (SR125/SR241)	$400	$0	$530	$930
Miscellaneous/Carry-over from Prior Years	$455	$140	$200	$795
Subtotal	$5,325	$6,285	$8,080	$19,690
State				
State Transportation Improvement Program (STIP)	$890	$1,410	$1,480	$3,780
Traffic Congestion Relief Program (TCRP)/Proposition 42	$455	$440	$530	$1,425
State Transit Assistance (STA) Program	$85	$170	$195	$450
State Highway Account Funds for Operations/Maintenance/Rehab.	$1,170	$1,490	$1,720	$4,380
Future Gas Tax or Equivalent Revenue	$285	$550	$965	$1,800
Miscellaneous/Carry-over from Prior Years	$705	$355	$770	$1,830
Subtotal	$3,590	$4,415	$5,660	$13,665
Federal				
Federal Transit Administration (FTA) Discretionary	$575	$470	$500	$1,545
Federal Transit Administration Formula	$530	$620	$660	$1,810
Regional Surface Transportation Program (STP)	$280	$280	$250	$810
Congestion Mitigation and Air Quality (CMAQ) Program	$310	$315	$275	$900
Future Gas Tax or Equivalent Revenue	$285	$550	$965	$1,800
Miscellaneous/Carry-over from Prior Years	$385	$285	$1,000	$1,670
Subtotal	$2,365	$2,520	$3,650	$8,535
Total	**$11,280**	**$13,220**	**$17,390**	**$41,890**

TABLE 4.2—MAJOR EXPENDITURES/REASONABLY EXPECTED REVENUE SCENARIO

PROJECT CATEGORIES	ESTIMATED COST ($ IN MILLIONS)			
	FY 2002-2010	FY 2011-2020	FY 2021-2030	FY2002-2030
Systems Development & Operations				
Transit				
Major New Facilities (includes $80 million by 2010 for Early Action projects)	$2,535	$2,285	$3,680	$8,500
Miscellaneous Capital/Rehabilitation/Replacement	$600	$870	$510	$1,980
Operating Subsidies	$1,265	$1,795	$2,415	$5,475
Subtotal	$4,300	$5,050	$6,605	$15,955
Joint Use Facilities				
Managed/High Occupancy Vehicle (HOV) Lane Facilities	$780	$3,770	$2,900	$7,450
Highways				
System Completion/Widening Projects	$2,130	$340	$1,110	$3,580
Operations (includes $100 million by 2010 for Congestion Relief projects)	$310	$270	$290	$870
Maintenance	$470	$570	$630	$1,670
Rehabilitation	$490	$650	$800	$1,940
Subtotal	$3,400	$1,830	$2,830	$8,060
Local Streets and Roads				
New Facility Construction	$1,340	$1,515	$1,575	$4,430
Regionally Significant Arterials	$160	$170	$170	$500
Operations/Maintenance/Rehabilitation	$1,440	$1,615	$1,665	$4,720
Subtotal	$2,940	$3,300	$3,410	$9,650
Land Use/Systems Management/Demand Management				
Smart Growth Incentive Program	$25	$0	$0	$25
Bicycle/Pedestrian Improvements	$35	$85	$110	$230
Transportation Systems Management	$130	$150	$160	$440
Transportation Demand Management	$40	$45	$50	$135
Subtotal	$230	$280	$320	$830
Total	**$11,750**	**$14,130**	**$16,065**	**$41,945**

REVENUE CONSTRAINED SCENARIO ANALYSIS

The Revenue Constrained scenario provides the most conservative budget for future transportation improvements. The revenue assumptions do not include an extension of the *TransNet* Program beyond its current expiration date of 2008, and state and federal gas taxes are assumed to stay at today's levels (18 cents and 18.4 cents per gallon, respectively) through 2030. The result of these and other assumptions is a total revenue estimate of nearly $30 billion, or over $12 billion less for improvements than assumed in MOBILITY 2030.

A summary of the major funding sources is provided in Figure 4.3 and Table 4.3. With the *TransNet* Program expiring in 2008 under this scenario, *TransNet* contributes only three percent of the estimated revenue. All other local funds make up 40 percent of the total revenue, with state and federal funds providing 39 percent and 18 percent, respectively.

FIGURE 4.3—MAJOR REVENUE SOURCES/REVENUE CONSTRAINED SCENARIO ($30 Billion)

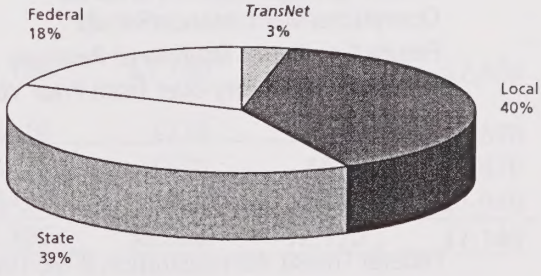


Table 4.4 and Figure 4.4 summarize the nearly $30 billion in expenditures under the Revenue Constrained scenario. About 32 percent of the total expenditures are for transit purposes, 14 percent for Managed/HOV lane improvements, 24 percent for highway related improvements, 28 percent for local street and road improvements, and two percent for the Land Use, Systems, and Demand Management (including bicycle and pedestrian components) strategies.

The reduced budget for improvements in this scenario results in significant cutbacks in the new transit, Managed/HOV lane facilities, and highway projects that can be afforded. As a result, the total share of revenues being spent on operations, management, maintenance, and rehabilitation activities under the Revenue Constrained scenario grows to 48 percent, as compared to 40 percent under the Reasonably Expected Revenue scenario.

The scarcity of revenues that can be used for transit operations is a significant issue, particularly with the Revenue Constrained scenario. In general, many programs provide funding for capital improvements; however, programs to support ongoing transit operating costs are limited. With the expiration of the *TransNet* Program in this scenario, the availability of funding for transit operations is even more constrained, allowing for significantly less expansion of transit services over today's service levels than is provided in MOBILITY 2030.

The specific projects and services included in the Revenue Constrained scenario are described in Appendix A. In addition to the reduced list of major transit, Managed/HOV lane, and highway improvements, the loss of the *TransNet* and other revenues assumed under this scenario results in cutbacks in the levels of bicycle and pedestrian improvements as reflected in Appendix A. The local street and road improvements derived from the local agency needs survey data shown in Technical Appendix 1 have been further reduced in this scenario to reflect the tighter budget assumptions.

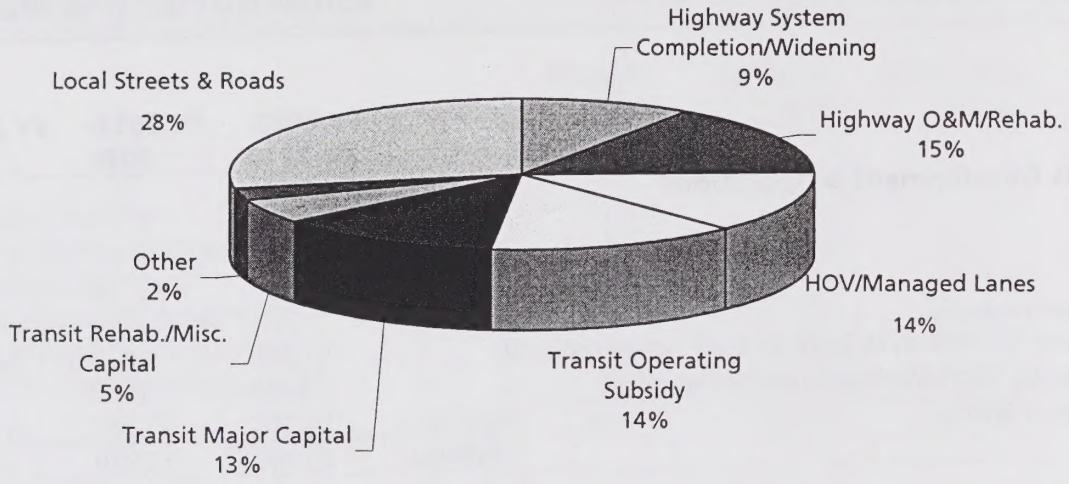
TABLE 4.3—MAJOR REVENUE SOURCES/REVENUE CONSTRAINED SCENARIO

REVENUE SOURCES	ESTIMATED REVENUE ($ IN MILLIONS)			
	FY 2002-2010	FY 2011-2020	FY 2021-2030	FY 2002-2030
Local				
TransNet (expires in 2008)	$1,005	$0	$0	$1,005
Transportation Development Act (TDA)	$910	$1,240	$1,660	$3,810
City/County Local Gas Taxes	$760	$745	$650	$2,155
General Fund/Misc. Local Road Funds	$1,330	$1,425	$1,370	$4,125
Toll Road Funding (SR 125/SR 241)	$400	$300	$150	$850
Miscellaneous/Carry-over from Prior Years	$455	$130	$195	$780
Subtotal	$4,860	$3,840	$4,025	$12,725
State				
State Transportation Improvement Program (STIP)	$890	$1,410	$1,480	$3,780
Traffic Congestion Relief Program (TCRP)/Proposition 42	$455	$440	$530	$1,425
State Transit Assistance (STA) Program	$85	$170	$195	$450
State Highway Account Funds for Operations/Maintenance/Rehab.	$1,170	$1,490	$1,720	$4,380
Future Gas Tax or Equivalent Revenue	$0	$0	$0	$0
Miscellaneous/Carry-over from Prior Years	$670	$325	$460	$1,455
Subtotal	$3,270	$3,835	$4,385	$11,490
Federal				
Federal Transit Administration (FTA) Discretionary	$485	$155	$170	$810
Federal Transit Administration Formula	$530	$620	$660	$1,810
Regional Surface Transportation Program (STP)	$280	$280	$250	$810
Congestion Mitigation and Air Quality (CMAQ) Program	$310	$315	$275	$900
Future Gas Tax or Equivalent Revenue	$0	$0	$0	$0
Miscellaneous/Carry-over from Prior Years	$340	$255	$390	$985
Subtotal	$1,945	$1,625	$1,745	$5,315
Total	**$10,075**	**$9,300**	**$10,155**	**$29,530**

TABLE 4.4—MAJOR EXPENDITURES/REVENUE CONSTRAINED SCENARIO

PROJECT CATEGORIES	ESTIMATED COST ($ IN MILLIONS)			
	FY 2002-2010	FY 2011-2020	FY 2021-2030	FY 2002-2030
Systems Development & Operations				
Transit				
Major New Facilities (includes $80 million by 2010 for Early Action projects)	$1,885	$825	$1,120	$3,830
Miscellaneous Capital/Rehabilitation/Replacement	$445	$765	$350	$1,560
Operating Subsidies	$1,105	$1,380	$1,580	$4,065
Subtotal	$3,435	$2,970	$3,050	$9,455
Joint Use Facilities				
Managed Lane /High Occupancy Vehicle (HOV) Facilities	$540	$1,500	$1,990	$4,030
Highways				
System Completion/Widening Projects	$1,126	$1,140	$400	$2,666
Operations (includes $100 million by 2010 for Congestion Relief projects)	$310	$270	$290	$870
Maintenance	$470	$570	$630	$1,670
Rehabilitation	$490	$650	$800	$1,940
Subtotal	$2,396	$2,630	$2,120	$7,146
Local Streets and Roads				
New Facility Construction	$1,300	$1,270	$1,230	$3,800
Regionally Significant Arterials	$100	$125	$125	$350
Operations/Maintenance/Rehabilitation	$1,390	$1,370	$1,350	$4,110
Subtotal	$2,790	$2,765	$2,705	$8,260
Land Use/Systems Management/Demand Management				
Smart Growth Incentive Program	$25	$0	$0	$25
Bicycle/Pedestrian Improvements	$20	$30	$35	$85
Transportation Systems Management	$130	$150	$160	$440
Transportation Demand Management	$40	$45	$50	$135
Subtotal	$215	$225	$245	$685
Total	**$9,376**	**$10,090**	**$10,110**	**$29,576**

FIGURE 4.4—MAJOR EXPENDITURES/REVENUE CONSTRAINED SCENARIO
($30 Billion)



UNCONSTRAINED REVENUE SCENARIO ANALYSIS

Although not developed to the same level of detail as the other two scenarios, an Unconstrained Revenue scenario was developed to provide an order of magnitude estimate for additional projects, programs, and services to meet projected travel demands beyond 2030 and to fully fund the related operating, maintenance, and rehabilitation needs regionwide. Such improvements would require additional funding above and beyond the levels assumed in MOBILITY 2030.

Table 4.5 summarizes the major expenditures under the Unconstrained Revenue scenario as compared to the Revenue Constrained and Reasonably Expected Revenue scenarios. The Unconstrained Revenue scenario exceeds the $42 billion MOBILITY 2030 by nearly $25 billion. The additional transit improvements needed to fully implement the Regional Transit Vision would result in significantly higher investments in transit capital and operations. Additional Managed/HOV lane and other highway capital improvements as well as Land Use, Systems, and Demand Management investments, would be needed to address remaining congested segments of the region's transportation system that could not be accommodated within the $42 billion financial budget established for MOBILITY 2030.

Highway rehabilitation costs were increased based on estimates provided by Caltrans. The limited revenues under the other scenarios were not sufficient to fund the full level of estimated highway rehabilitation needs. Similarly, the local street and road costs were increased to match the estimates derived from the local agency needs survey. These estimates are nearly $1.5 billion higher than the local street and road needs that could be funded under the budget established for the Reasonably Expected Revenue scenario.

TABLE 4.5—UNCONSTRAINED REVENUE SCENARIO
MAJOR EXPENDITURES AND REVENUES

PROJECT CATEGORIES	ESTIMATED COST ($ IN MILLIONS)		
	Revenue Constrained	Reasonably Expected Revenue	Unconstrained Revenue
Systems Development & Operations			
Transit			
Major New Facilities (includes $780 M by 2010 for Early Action projects)	$3,830	$8,500	$14,670
Miscellaneous Capital/Rehabilitation/Replacement	$1,560	$1,980	$2,480
Operating Subsidies	$4,065	$5,475	$8,640
Subtotal	$9,455	$15,955	$25,790
Joint Use Facilities			
Managed/High Occupancy Vehicle (HOV) Lane Facilities	$4,030	$7,450	$16,350
Highways			
System Completion/Widening Projects	$2,666	$3,580	$5,020
Operations (includes $100 M by 2010 for Congestion Relief projects)	$870	$870	$990
Maintenance	$1,670	$1,670	$1,940
Rehabilitation	$1,940	$1,940	$2,640
Subtotal	$7,146	$8,060	$10,590
Local Streets and Roads			
New Facility Construction	$3,800	$4,430	$5,800
Regionally Significant Arterials	$350	$500	$700
Operations/Maintenance/Rehabilitation	$4,110	$4,720	$6,235
Subtotal	$8,260	$9,650	$12,735
Land Use/Systems Management/Demand Management			
Smart Growth Incentive Program	$25	$25	$290
Bicycle/Pedestrian Improvements	$85	$230	$420
Transportation Systems Management	$440	$440	$660
Transportation Demand Management	$135	$135	$180
Subtotal	$685	$830	$1,550
Total Expenditures	**$29,576**	**$41,945**	**$67,015**
Total Available Revenue	**$29,530**	**$41,890**	**$41,890**
Surplus/Deficit	**-$46**	**-$55**	**-$25,125**

A specific funding plan for the Unconstrained Revenue scenario has not been prepared. There are a variety of funding mechanisms that could be investigated to help address the $24.8 billion funding shortfall expected under this scenario. A list of possible revenue options is provided in Table 4.6. Some of these revenue sources may prove to be more feasible and politically acceptable than others over time.

One method of reducing the shortfall would be to increase the gas tax. For example, a one-cent per gallon fixed rate gas tax increase would generate about $360 million in 2002 dollars between today and 2030 (see Technical Appendix 1). For comparison, a one-cent per gallon per year increase over the same time period would generate about $5 billion, while a ½ percent increase in the transportation sales tax would generate nearly $8 billion. Using these estimates, a 69-cent per gallon one-time gas increase, or a 5-cent per gallon per year increase through 2030, would be required to make up such a revenue shortfall with gas tax revenue alone.

Alternatively, to fund such a shortfall through the sales tax, a 1.5 percent sales tax would need to be enacted in addition to the ½ percent *TransNet* sales tax program already assumed to continue through 2030 in the Reasonably Expected Revenue scenario. The magnitude of this shortfall would be very difficult to address and would most likely require a package of various revenue mechanisms rather than a large increase to a single revenue source. Ongoing research into these and other options will be necessary to provide the revenue needed to fully implement the Unconstrained Revenue scenario.

TABLE 4.6—POTENTIAL TRANSPORTATION REVENUE SOURCES

- Increase gas tax rate per gallon
- Index the motor vehicle fuel tax to Consumer Price Index(CPI)/Construction Cost Index(CCI)
- Increase truck weight fees
- Institute regional development impact fees for transportation improvements
- Expand use of the FasTrak™ High Occupancy Toll (HOT) Lane System
- Implement fees per vehicle miles of travel
- Increase revenues through State-Local fiscal reform efforts
- Change the fuel gallonage tax to a sales tax base
- Increase the *TransNet* local transportation sales tax
- Increase California's share of Federal Highway Trust Fund
- Implement additional toll roads/privatization projects
- Implement additional pricing mechanisms
- Institute parking surcharges for transportation improvements

ACTIONS

The following actions support the Plan's Financial Strategies Chapter recommendations.

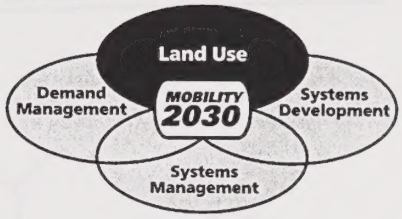
FINANCIAL STRATEGIES

Proposed Actions	Responsible Parties
General Legislative and Funding Actions	
1. Develop an expenditure plan for an extension of the *TransNet* local transportation sales tax program and place a measure before the voters in November 2004. In developing the expenditure plan, priority consideration should be given to cost-effective projects that serve regional needs, implement RTP goals, and support smart growth principles.	SANDAG, Caltrans, local jurisdictions, and interested organizations
2. Maximize opportunities to leverage local transportation sales tax revenues to attract additional state and federal funds to the region for transportation and related infrastructure improvements.	SANDAG, local agencies
3. Support federal transportation legislation that provides for the following principles:	SANDAG
a. Removing the Federal Highway Trust Fund programs from the Federal Unified Budget process;	
b. Establishing federal transportation program authorization and obligational authority levels based on actual and projected Trust Fund revenue levels including interest received;	
c. Maintaining or increasing the level of revenue flowing into the Trust Fund by increasing the federal gas tax rate and/or eliminating or reducing transfers of tax exemptions that shift transportation revenues to other purposes;	
d. Increasing the minimum 90.5 percent "fair share" return of federal highway revenues to California;	
e. Consolidating most federal highway categorical programs to provide greater flexibility and local discretion in highway fund usage;	
f. Authorizing a minimum five-year highway and transit program to provide needed program stability and continuity of federal transportation policy; and	
g. Providing for the continuation and expansion of the level of transit operating and capital support and providing greater flexibility in the use of such funds.	
4. Support state transportation legislation that provides for the following principles:	SANDAG
a. Increasing State highway revenues as needed to maintain, rehabilitate and operate the existing State highway system, to match all available federal highway funds, and to fully fund all new construction and right-of-way projects identified in the current State and Regional Transportation Improvement Programs (TIPs);	

FINANCIAL STRATEGIES	
Proposed Actions	**Responsible Parties**
b. Ensuring that any reevaluation of the present formula "County Share" funding provisions and/or any other revenue distribution formula does not penalize counties that provide local sales tax or other local funding to state highway projects;	
c. Establishing state/local matching programs or other programs to reward counties that have implemented local sales taxes or other major local funding sources for transportation improvements;	
d. Sharing of both diesel fuel tax revenues and truck weight fees with local cities and counties and with Caltrans;	
e. Allowing local jurisdictions in cooperation with regional agencies to jointly determine the allocation of additional local street and road revenues; and	
f. Increasing transit revenues to support transit operating and capital improvements, including transit guideway projects.	
5. Support state and federal legislation providing for the additional gas tax funding, or equivalent funding from another revenue source, needed to implement those projects identified in the RTP.	SANDAG
6. Support state and federal legislation providing for the indexing of gas tax revenues to keep pace with inflation either by increasing the gas tax at regular intervals based on increases in the Construction Cost Index, or by changing the tax from a gallonage basis to a percentage basis so that revenues increase with the price of fuel.	SANDAG
Local Jurisdiction Actions	
7. Maintain current levels of local general fund and other local discretionary fund support to the local street and road program so that any new or increased revenues to the local street and road program will augment and not supplement current revenues.	Local jurisdictions
Transit Actions	
8. Aggressively pursue the continuation and expansion of existing sources of transit funding and support modifications to those sources to ensure full utilization and maximum flexibility.	SANDAG, transit operators
9. Work with local, state, and federal officials to ensure that the region receives an equitable share of available discretionary transit funds.	SANDAG, transit operators
10. Adjust fare levels as needed to maintain and improve farebox recovery levels over time in order to maximize the level of transit service that can be provided.	SANDAG, transit operators

FINANCIAL STRATEGIES	
Proposed Actions	**Responsible Parties**
11. Pursue private sector involvement in the funding of transit facility development and operation through developer contributions, benefit assessment districts, joint development and value capture projects, and other efforts to contribute toward unfunded regional transit facilities.	SANDAG, MTDB, NCTD, and local jurisdictions

CHAPTER 5
LAND USE-TRANSPORTATION CONNECTION: WE MUST GROW SMARTER



CHAPTER CONTENTS

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This Chapter focuses on interrelationships of population growth, land use, and the environment to the region's mobility. *Will our future growth simply be business as usual, or is there a smarter way? Can a regional approach to land use patterns, and a greatly enhanced transit system combine to improve mobility and livability? If so, will everyone benefit, or will there be winners and losers?*

A BETTER WAY TO GROW

Using a baseline transportation network, alternative land use scenarios were evaluated against the Plan's smart growth land use. The analysis yielded similar measures of transportation system performance, but smart growth saved rural lands, resulted in less interregional commuting, and provided the most housing opportunities within the region.

MOBILITY 2030 is based on the long-range population, housing, and employment projections of the preliminary 2030 Cities/County Forecast. This forecast assumes that the region will encourage more and more smart growth development over time. To that end, the forecast identifies potential smart growth areas in nearly every jurisdiction.

The City of San Diego's forward-thinking City of Villages concepts are incorporated in the forecast. The City of Chula Vista, which has long supported the smart growth elements of the Otay Ranch master plan, identifies several other areas of the city where they believe smart growth development and redevelopment makes sense. The County's general plan update, GP2020, includes changes to land use plans and densities that will help to reduce urban sprawl and preserve open space in the backcountry.

These are the major players so far, but all of the 18 cities and the county have made some level of commitment to smart growth, which are reflected in the forecast used for MOBILITY 2030. This represents a significant change from the past forecast, which contained smart growth assumptions in the form of future increases in residential and employment densities around transit focus areas, but for which the jurisdictions had made no commitments.

SANDAG is committed to smart growth and will create a five-year, $25 million incentive program for smart growth pilot projects.

SANDAG is committed to smart growth as well, and among other actions, will create a five-year, $25 million incentive program for smart growth pilot projects. Grant funds will be made available to all jurisdictions for projects that incorporate concepts such as the integration of transportation and land use, or the revitalization of community centers that includes making an area more conducive to

mixed land uses, transit, walking, and biking. SANDAG's Regional Planning Committee and Transportation Committee, along with working groups of planning and public works directors and other local agencies and interest groups, will craft the details of this incentive program.

If the program proves successful, it could be extended and expanded. Over time, the SANDAG Board of Directors may wish to commit substantially more discretionary funds toward fostering smart growth development in the region.

By definition, smart growth development helps to achieve four of MOBILITY 2030's seven policy goals. It improves Livability by making neighborhoods more walkable and, with proper design, more aesthetic. It puts people closer to jobs and transit, thereby reducing sprawl and increasing the region's Mobility and Sustainability. And, by providing true choices in housing types and making transit service available to that housing, it helps to support the Equity goals.

Figures 5.1 and 5.2 show four ranges each of population and employment densities, respectively, per quarter square mile in 2030. Figure 5.3 displays smart growth focus areas (combinations of population and employment densities) in the region in the year 2030.

Regional Comprehensive Plan

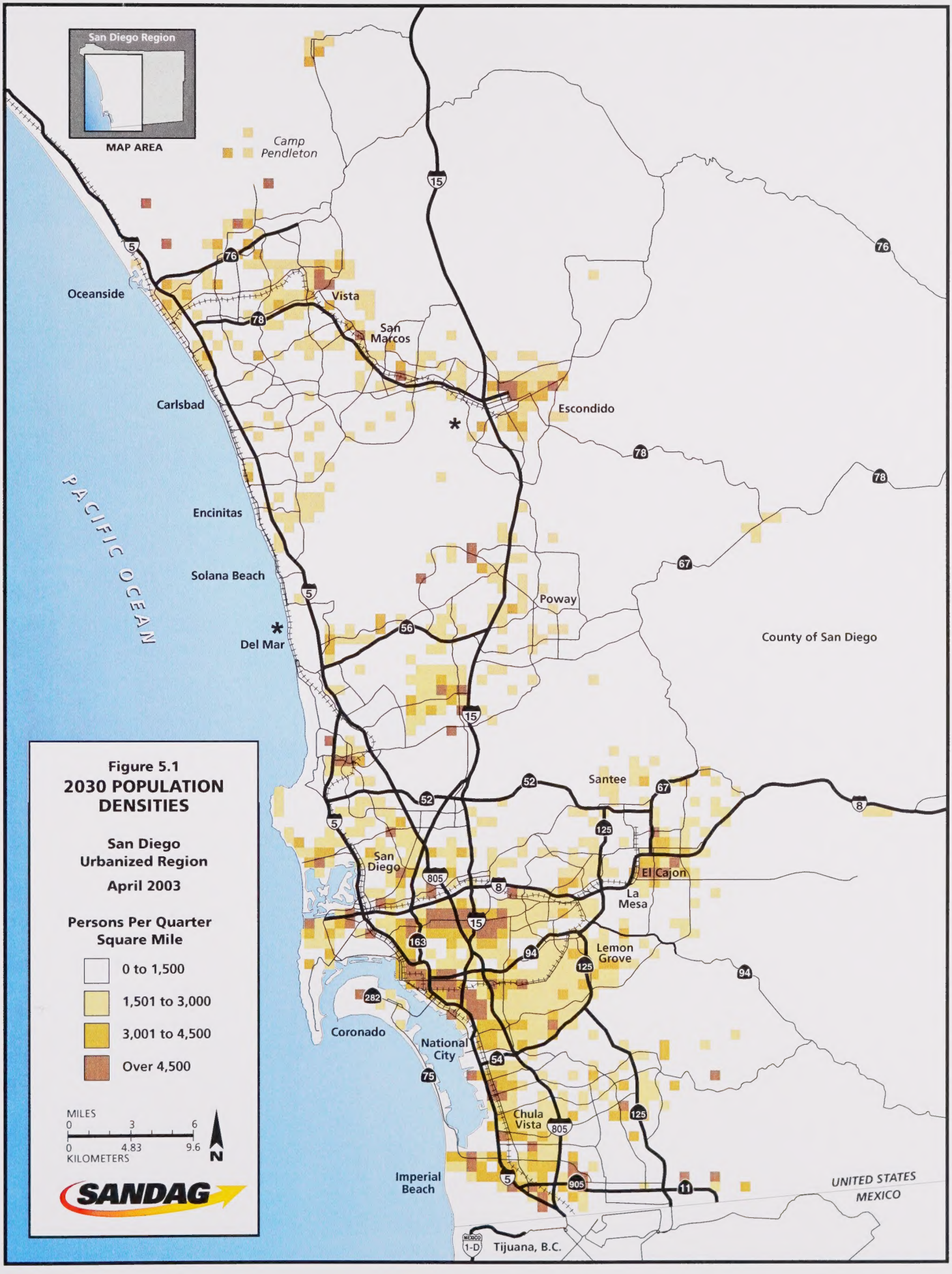
The REGION2020 Growth Management Strategy was developed and launched in conjunction with the last RTP. The Strategy was a first step toward informing elected officials and the general public about growth issues in general and illustrating specific ways that the region could grow in a smarter, more sustainable manner. REGION2020 also provided jurisdictions with an opportunity to make their own commitments to smart growth.

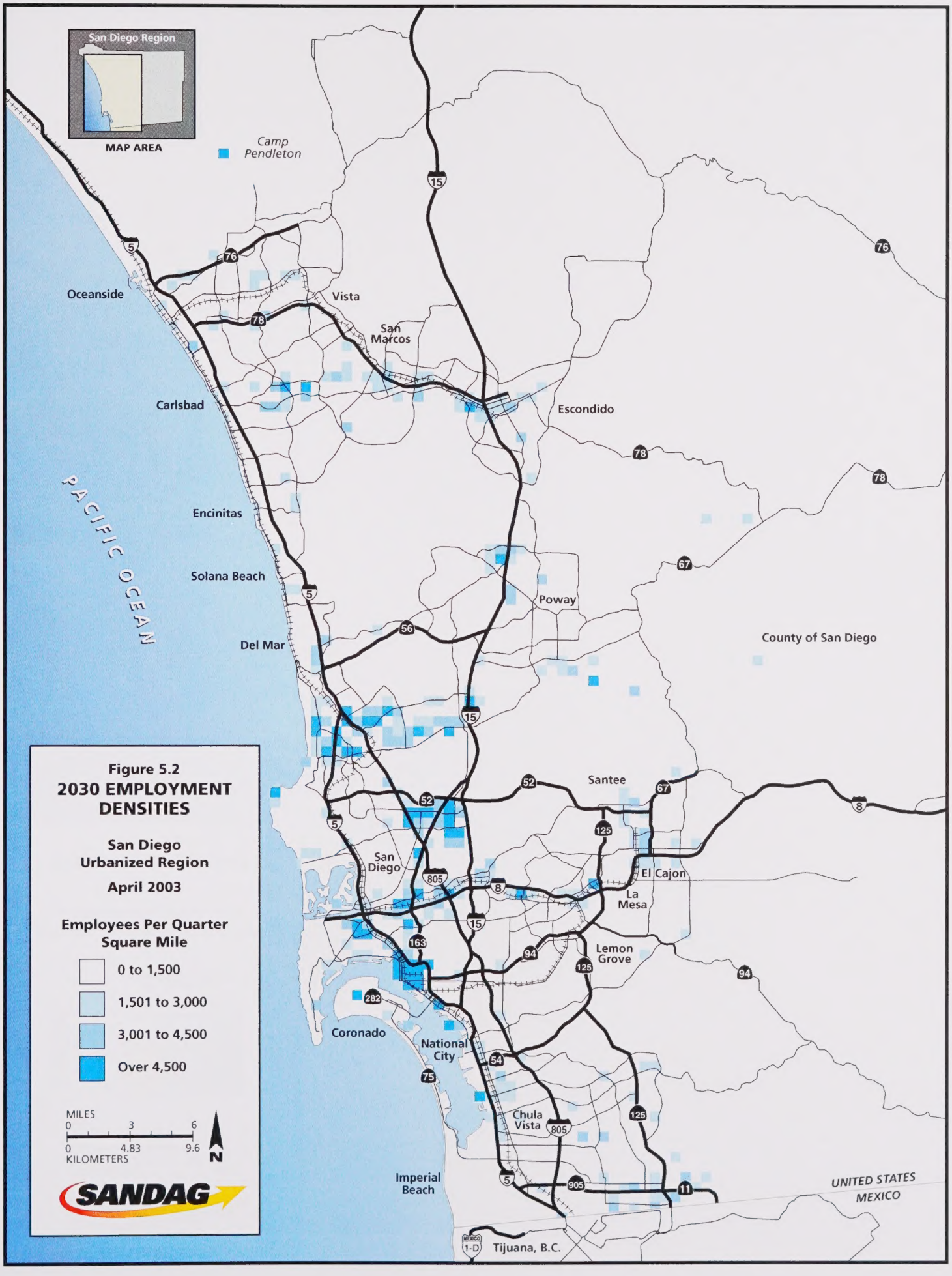
Growth and change will continue in the region over the next several decades. All jurisdictions can make positive contributions toward preparing for that change.

REGION2020 was not intended to be a one-size-fits-all approach to growth management. It was always recognized that the region's jurisdictions, and the communities within the jurisdictions, have different needs and priorities.

However, the land use plans and policies within the individual jurisdictions do have a cumulative impact on the region as a whole. REGION2020 was intended to be a framework that the jurisdictions could tailor to improve their own livability, while at the same time enhancing that of the region. Growth and change will continue in the region over the next several decades. All jurisdictions can make positive contributions toward preparing for that change.

REGION2020 is now evolving into the Regional Comprehensive Plan (RCP), which will build upon the Strategy's smart growth goals and principles. It will serve as the smart growth framework for strengthening the relationship between local plans and policies and regional plans and policies as well as between land use and transportation plans.


San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
PACIFIC OCEAN
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 5.1
2030 POPULATION DENSITIES
San Diego Urbanized Region
April 2003
Persons Per Quarter Square Mile
0 to 1,500
1,501 to 3,000
3,001 to 4,500
Over 4,500
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG


San Diego Region
MAP AREA
Camp Pendleton
Oceanside
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Carlsbad
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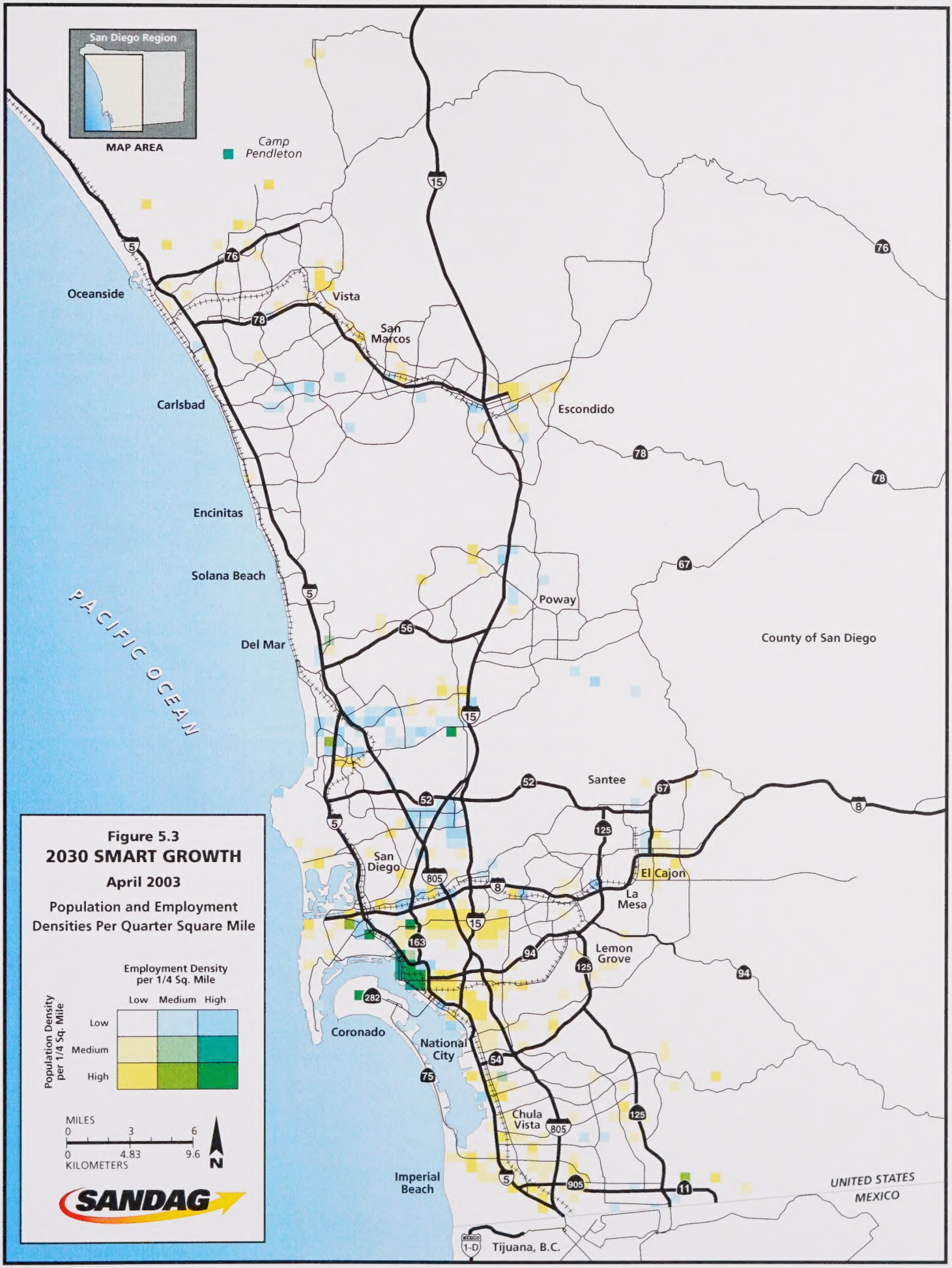
PACIFIC OCEAN
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 5.2
2030 EMPLOYMENT DENSITIES
San Diego Urbanized Region
April 2003
Employees Per Quarter Square Mile
0 to 1,500
1,501 to 3,000
3,001 to 4,500
Over 4,500
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG


San Diego Region
MAP AREA
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Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 5.3
2030 SMART GROWTH
April 2003
Population and Employment Densities Per Quarter Square Mile
Employment Density per 1/4 Sq. Mile
Low Medium High
Population Density per 1/4 Sq. Mile
Low
Medium
High
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

Implementation of MOBILITY 2030 requires coordination with the region's local land use plans and policies. For example, creating efficient and cost-effective transit routes and service levels depends on appropriate residential and employment densities, particularly in our urban areas. Central to resolving our transportation dilemma is addressing our region's affordable housing crisis, building new communities and rebuilding older ones around mixes of land use, public transit, walking, and biking, and providing other needed infrastructure to support smart growth development.

Creating efficient and cost-effective transit routes and service levels depends on appropriate residential and employment densities, particularly in our urban areas.

The current land use plans need to be better connected to these objectives. First through MOBILITY 2030, and later the Regional Comprehensive Plan, the land use-transportation connection will be strengthened where opportunities exist.

MOBILITY 2030 includes all of the local agencies' smart growth commitments. Preliminary analyses indicate that although the addition of these smart growth areas results in fairly minimal impacts on the region's overall transportation system performance in the near term, they are clearly a step in the right direction. Adding more such land use changes over time could indeed improve future performance of the transportation system. This process will be facilitated through iterative, ongoing updates of the local plans, the RTP, and the RCP. The Regional Comprehensive Plan will provide the structure for connecting local land use plans and transportation investments so that we can better meet our future needs.

The Regional Comprehensive Plan will provide the structure for connecting local land use plans and transportation investments so that we can better meet our future needs.

INTEGRATING TRANSIT

In the San Diego region of today, as in many urban areas of the western United States, the distribution of homes, offices, schools, retail stores, and other major activity centers and the transportation network that connects them, have been shaped primarily by our dependence on the automobile. The land uses and transportation networks in our region are widely dispersed compared to some other regions of the country.

We cannot sustain our historical patterns of land use and build enough roadways to keep up with projected increases in motorized travel. Congestion in urban areas will generally worsen over time unless options are available that allow people to get out of their single occupant vehicles, especially during peak travel periods.

MOBILITY 2030 envisions vastly improving regional transit service. The Regional Transit Vision is a joint effort to make public transit the first choice for many of our trips. The Plan recognizes that transit, however, is not for every area and every trip.

MOBILITY 2030 envisions vastly improving regional transit service through the implementation of the Regional Transit Vision (RTV), adopted by SANDAG in November 2001. The RTV is a joint effort by SANDAG, the Metropolitan Transit Development Board (MTDB), and the North San Diego County Transit Development Board (NCTD) to make public transit the first choice for many of our trips. The Plan recognizes that transit improvements need to be focused in areas with compatible land uses that support an efficient transit system. Transit is not, however, for every area and every trip.

The RTV calls for transit to be integrated into many of our communities and neighborhoods, with the design and location of transit stations serving as central activity centers. The RTV envisions a network of convenient, reliable, fast, and safe services that interconnect the region.

Local jurisdictions need to establish neighborhood and community centers with a mix of retail, office, service, and residential uses.

Neighborhoods and communities will be improved and strengthened by providing the facilities we need to make mobility through transit use, biking, and walking more convenient, faster, and safer. These include a better mix of land uses accompanied by pleasant, tree-lined sidewalks, design standards that emphasize the human scale, and streets that encourage slower but more smoothly flowing automobile traffic.

Local jurisdictions need to establish such neighborhood and community centers with a mix of retail, office, service, and residential uses. These centers of moderate to higher densities will encourage walking as a major travel option for access to jobs and services as well as to transit. The result will be shorter trips overall, with a higher proportion of them made within the neighborhood. Such transit-oriented land uses are critical to improving livability and maximizing the number of people with access to transit.

The region's cities and the county have identified a number of potential neighborhood and community centers that have been incorporated into the land use assumptions used in MOBILITY 2030. Our local jurisdictions, by power of their land use authority, will play a significant role in creating these people-friendly activity centers. With sufficient population and employment, these areas will serve as key locations for transit stations.

Other commitments on the part of local jurisdictions are needed. Local jurisdictions must work with Caltrans, SANDAG, MTDB, and NCTD to implement appropriate transit priority measures that will allow transit to bypass congested roadways and intersections. These could include signal priority, dedicated transit lanes, or grade-separated intersections.

The transportation agencies must do their part as well. Coordination and cooperation among SANDAG, Caltrans, MTDB, NCTD, and the local jurisdictions to better integrate transit with land use are essential. Several key travel corridors in the region are currently under study as showcase projects for the high quality transit services contained in the Regional Transit Vision. Public outreach and involvement programs are planned to demonstrate to the public that these transit services are unlike anything that is currently available. It is important that these showcase services be implemented within the next few years so that people can see and experience a new kind of vehicle, a new kind of station, new sources for transit information, and a new way of providing public transit services.

Public outreach and involvement programs are planned to demonstrate to the public that these transit services are unlike anything that is currently available.

AIR QUALITY

The federal Clean Air Act requires the Environmental Protection Agency to set national air quality standards. The State of California has adopted even more stringent standards. Although the region now meets the federal one-hour standard for ozone (one of the main components of smog), we remain a "non-attainment area" by the stricter state standards.

Under federal and state air quality regulations, special requirements in non-attainment areas ensure that proposed transportation activities – plans, programs, and projects – do not cause new, or contribute to existing air quality problems. Compliance with these regulations is referred to as "transportation conformity," which requires analyses that demonstrate that forecasted emissions are within healthy air quality limits. The air quality conformity analysis for the Plan is included in Appendix C.

In spite of large increases in vehicle miles traveled over the past two decades, the region's air quality has actually gotten better over time.

Cleaner Air

The San Diego region's primary air pollution problems are caused by ozone, also known as photochemical smog. Emissions from cars, power plants, chemical plants, and other sources cause smog. Pollution transported from the Los Angeles air basin also adversely affects our region's smog levels.

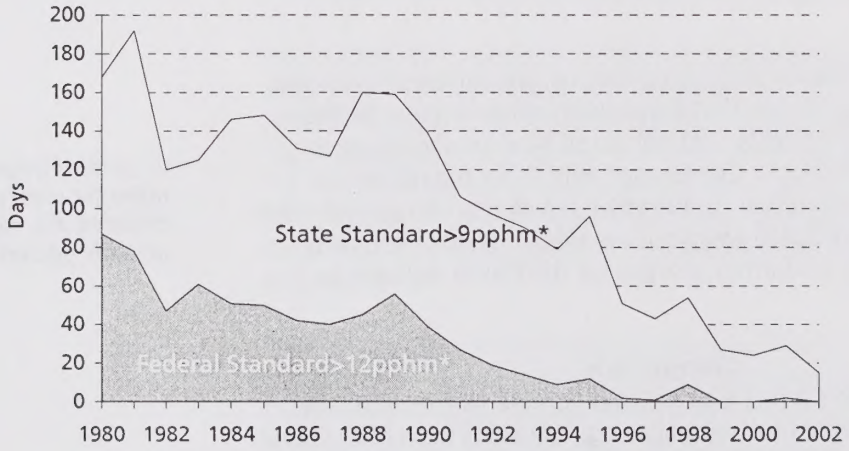
In spite of large increases in vehicle miles traveled over the past two decades, the region's air quality has actually gotten better over time. Figure 5.4 displays the downward trends in air pollution levels in the region since 1980. There were no exceedances of the federal one-hour ozone standard in the San Diego air basin in 1999, 2000, and 2002. The region exceeded the federal standard on two days in 2001, compared with 12 days in 1995 and 87 days in 1980. Days exceeding the more stringent state standards also declined over the same period.

Improvements from the transportation sector are primarily the result of advances in technology. The elimination of lead in gasoline, lower fuel volatility, and the advancement of emissions control systems have significantly reduced air quality emissions, including reactive hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx).

Continued Commitment to Better Air

Air quality remains an important concern for the region. Federal and state standards are safeguards against the adverse health effects of pollution. MOBILITY 2030 reaffirms the region's commitment to maintain air quality standards. The integration of smart growth development combined with the investments in public transit, managed/high occupancy vehicle, pedestrian, and bicycle facilities will help lessen dependency on motor vehicle travel, which in turn, will benefit the region's air quality.

FIGURE 5.4—DAYS EXCEEDING OZONE CLEAN AIR STANDARDS – SAN DIEGO AIR BASIN



* pphm – parts per hundred million

SOURCE: SAN DIEGO AIR POLLUTION CONTROL DISTRICT

ENVIRONMENTAL JUSTICE

Environmental Justice encourages better land use decisions, improves access to jobs, helps promote good air quality, and strengthens neighborhoods.

Environmental Justice is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies. SANDAG's plans, projects, and programs comply with the principles of environmental justice and all associated federal and state requirements.

Environmental Justice encourages better land use decisions, improves access to jobs, helps promote good air quality, and strengthens neighborhoods. It also supports community involvement in regional planning and programming through improved communications and active engagement with the process.

Promoting Public Involvement

In order to avoid any adverse impacts of the RTP on minority[1], low income, or other populations at risk of adverse impacts, SANDAG is undertaking a program to promote community involvement in the planning process. Through its expanded community outreach, SANDAG is attempting to learn of the community's needs for improved transportation and listen to proposals for accomplishing the improvements.

A public outreach program began prior to the release of the preliminary draft MOBILITY 2030. Appendix B provides additional information about the public outreach activities. Through this program, SANDAG Directors and staff members have participated in community events throughout the region to discuss transportation needs with residents. SANDAG continued this program throughout the planning process.

To remain in contact with the community and open to its comments, SANDAG has a number of committees and working groups to advise it on transportation and transit plans and programs. Comments from the members have guided SANDAG's Plan development and provided valuable information from the community.

SANDAG will continue to seek out community information through its speaker's bureau and at community meetings, forums, and events. SANDAG maintains an extensive Web site of information and invites public communications through e-mail, phone, and attendance at meetings.

SANDAG continues its program of promoting the use of public transit and invites the low income community, especially those who are transit dependent, to communicate with SANDAG on their needs to access jobs, school, and personal business locations. With the 2003 consolidation of SANDAG with the planning departments of the region's transit districts, this effort will be enhanced.

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[1] Minority groups include African-American, Asian, American Indian or Alaskan Native, and Native Hawaiian or Other Pacific Islander. In addition, persons of Hispanic ethnicity are considered a minority group.

There are 18 reservations and 17 tribal governments in the San Diego region.

There are 18 Native American reservations and 17 tribal governments in the San Diego region. A specific outreach effort is being made to these sovereign governments to ensure that they have access to the planning process, and that the transportation needs of the tribal members and the residents of the reservations are considered in the Plan development. On October 11, 2002, SANDAG held the first ever Tribal Governments/ SANDAG Board of Directors Summit to promote cooperation between SANDAG and the Tribal Governments. Additional summits will be held to continue the dialogue between the governments.

The main purpose of the Environmental Justice analysis conducted for the Plan was to determine whether a proposed transportation improvement strategy would result in disproportionate negative impacts to minority and low income populations.

Recently, SANDAG conducted a quantitative evaluation to understand the extent to which benefits or adverse impacts of proposed transportation projects and policies affect minority and low income populations. Geographic Information System (GIS) methods were used to analyze demographic, socio-economic, and transportation data. The primary purpose of this analysis was to determine whether a proposed transportation improvement strategy would result in disproportionate negative impacts to minority and low income populations. If that were the case, the proposed improvements would be evaluated to minimize unfavorable impacts. The results of this analysis did not show substantive disproportionate effects. Additional information is provided in Technical Appendix 5.

Population and Ethnicity

The San Diego region is an ethnically diverse area, and it will become more so by 2030. Just ten years ago, the non-Hispanic White population of the region was 65 percent of total population. Census 2000 data show that non-Hispanic Whites now constitute 56 percent of the population, continuing to decline to 41 percent by 2030. Hispanics comprise 27 percent of the region's population today and will make up 39 percent of the population by 2030.

Between 2000 and 2030, the Asian/Other population will increase from 11 percent to 15 percent. The Native American population, which is a portion of the Asian/Other population, will remain steady at about one percent of the region's total population. The share of Black/African American population will remain at five percent to six percent.

Population and Age

The median age of the population of the San Diego region is increasing. In 1990, the median age was 31 years, increasing to 33 years in 2000. In 2030, median age is expected to increase to 36 years. In 1990, the percent of children under 18 years of age was 26 percent, the same percentage reported in the 2000 Census. By 2030, children under 18 years of age are expected to account for only 21 percent of the population.

Income and Other Factors

In 1999, the region's median household income as reported by the U.S. Census Bureau was $47,067, with 12 percent of the population of the region living below the federal poverty thresholds. Comparable figures for 1989 were $35,000 median household income and 11 percent of the population below the poverty thresholds. By 2030, the median household income is predicted to increase to $72,000 (in 1999 dollars).

In 2000, 33 percent of the region's population spoke a language other than English at home.

Other characteristics of the region's population of concern to Environmental Justice programs include the following:

- In 2000, 33 percent of the region's population spoke a language other than English at home.
- 21.5 percent of the population was foreign-born.
- Persons with disabilities accounted for 18 percent of the non-institutionalized population.

ACTIONS

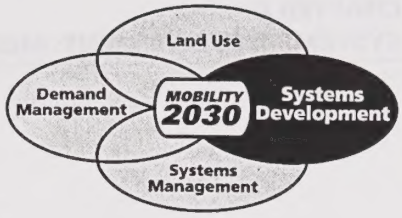
The following actions support the Plan's Land Use-Transportation Connection Chapter recommendations.

LAND USE & ENVIRONMENT

Proposed Actions	Responsible Parties
Smart Growth and the Regional Comprehensive Plan – The following proposed actions support the RTP goals of Accessibility, Livability, Sustainability, and Equity.	
1. Support the preparation and implementation of the Regional Comprehensive Plan, and update local general and community plans and zoning codes to encourage smart growth development and to strengthen the implementation of the Regional Comprehensive Plan.	Local jurisdictions
2. Support legislation that provides low-cost loans and/or tax incentives to developers of smart growth projects; that helps provide housing for all; and that addresses fiscal reform issues, consistent with smart growth principles and regional strategies.	SANDAG and local jurisdictions
3. Develop design guidelines that encourage aesthetically pleasing high-density housing.	Local jurisdictions
4. Establish a five-year, $25 million pilot program to provide incentives for integrating transportation and smart growth development.	SANDAG
Integrating Transit– The following proposed actions support the RTP goals of Mobility, Accessibility, Livability, Sustainability, and Equity.	
5. Integrate local land use plans and policies with smart growth and the Regional Transit Vision (RTV) principles and goals.	Local jurisdictions
6. Prepare RTV design guidelines to permit transit facilities to be successfully integrated into community and neighborhood centers, and identify areas where future transit stations can be located to best integrate with activity centers to maximize transit ridership.	SANDAG and local jurisdictions
7. Revisit the RTV annually and compile a progress report on efforts to implement the vision.	SANDAG
Air Quality and Conformity – The following proposed actions support the RTP goal of Sustainability.	
8. Implement the Regional Air Quality Strategy (RAQS) with the assistance of SANDAG where appropriate, and ensure that transportation plans contribute to the implementation of the RAQS and conform to the current State Implementation Plan (SIP).	APCD and SANDAG

LAND USE & ENVIRONMENT	
Proposed Actions	**Responsible Parties**
Air Quality and Conformity – The following proposed actions support the RTP goal of Sustainability.	
9. Review and update the Transportation Control Measures (TCM) Plan for Air Quality for consistency with changing goals and policies. Any revisions to the TCM Plan would be submitted to the APCD for inclusion in mandated updates of the RAQS and the SIP.	SANDAG and APCD
10. Encourage local jurisdictions to implement smart growth strategies, including the APCD's Air Quality/Land Use Guidelines.	SANDAG
Environmental Justice—The following proposed actions support the RTP goals of Accessibility and Equity.	
11. Seek comments from minority and low income communities in planning and programming efforts to ensure that plans and programs do not adversely affect the communities.	SANDAG
12. Work with the region's transit operators to ensure that transit services are available to minority, disabled, elderly, and low income persons so that they have access to services, employment, and schools.	SANDAG

CHAPTER 6
SYSTEMS DEVELOPMENT: MORE TRAVEL CHOICES



This Chapter describes the Plan's priorities for regional transportation infrastructure and service improvements. It includes sections on transit, highways and arterials, intercity rail, border improvements, goods movement and intermodal facilities, aviation, and regional bikeways. (Further discussion of non-motorized alternatives is provided in Chapter 8 - Demand Management.)

The existing regional network consists of 600 miles of highways (including 16 miles of high occupancy vehicle lanes), 87 miles of regional transit service, and more than 700 miles of regional arterials. When implemented, the improvements in MOBILITY 2030 will complete the region's highway and arterial network and develop a system of connected and free-flowing managed/high occupancy vehicle (HOV) lanes integrated with 17 new or improved high-quality regional transit services.

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DEVELOPING THE MOBILITY NETWORK

MOBILITY 2030 doesn't start from scratch. It builds upon the existing transportation system in place today and the major projects in progress from the 2020 RTP. The recommendations from past and current regional and corridor transportation studies are integral to the development of the Plan (see Appendix D). Since the 2020 RTP, SANDAG completed the Regional High Occupancy Vehicle/Managed Lane Study, North Coast Transportation Study, State Routes 67/125 Corridor Study, Freeway to Freeway Connectors Study, and Central I-5 Corridor Study, whose recommendations have been considered in the Plan's development. In November 2001, SANDAG adopted the Regional Transit Vision as a framework for developing the Plan. Ongoing studies include the Midcoast Strategic Transportation Study, the Interstates 5/805 Corridor Study, and the North-South Transportation Facility Study, which are evaluating a variety of improvements and strategies to improve mobility in their specific corridors.

MOBILITY 2030 doesn't start from scratch. It builds upon the existing transportation system in place today and the major projects in progress from the 2020 RTP.

Individual project recommendations from regional and corridor transportation studies are analyzed using criteria developed to evaluate similar categories of projects. Separate project evaluation criteria have been developed for highway corridor improvement projects, freeway to freeway connectors, regional transit services, and regional arterials (see Technical Appendices). The relative project rankings in each of these categories are considered in the development of the Plan and in regional programming decisions.

MOBILITY 2030 is a high-level strategic planning document. The regional transportation improvements included in the Plan are subject to additional, more detailed engineering and environmental analyses as projects move through the development process.

Carpool lane development performed the best in regional Mobility, Accessibility, and Reliability measures. It had the shortest average trip times, the greatest improvements in work and school trips accessible within 30 minutes, and greatest reduction in traffic congestion.

Transportation Alternatives Analysis

To develop MOBILITY 2030, SANDAG evaluated alternative transportation network scenarios to illustrate "what if" scenarios. The initial three scenarios invested the majority of regional funding in a particular mode – general purpose highways, carpool lanes, or transit. Using the performance measures described in Chapter 2 (MOBILITY 2030 Vision), an analysis of the three initial networks against a "no build" scenario was completed to see how well each network performed across the goals of the 2030 RTP. The alternatives analysis showed relatively small numeric differences in the results of the different networks. Improving the regional transportation system either by focusing on transit or roadway improvements results in similar measures of Mobility and Accessibility at the regional level. (See the Technical Appendices for more information about the alternative networks evaluated.)

The alternative that emphasized carpool lane development performed the best in regional Mobility, Accessibility, and Reliability measures. It had the shortest average trip times, the greatest improvements in work and school trips accessible within 30 minutes, and greatest reduction in traffic congestion. However, it did not achieve a double-digit peak period mode share for transit, a major RTP policy objective. The alternative that emphasized general purpose highway improvements performed about the same or slightly worse than the carpool alternative across the same measures.

The objective is to tailor improvements and services to individual corridors, while at the same time providing the most beneficial results system-wide.

The alternative that emphasized transit performed the best in regional Livability and Sustainability measures. It had the highest peak period transit mode share and resulted in the fewest vehicle miles traveled, fewest accidents and fatalities, and least smog-forming pollutants compared to the other two alternatives.

The results of the initial alternatives analysis were considered in the development of the Plan's Mobility Network. Level of service[1], peak volumes by mode, and travel times by mode were evaluated on a corridor by corridor basis to determine the best mix of modal improvements. The objective was to tailor improvements and services to individual corridors, while at the same time providing the most beneficial results system-wide. (The Technical Appendices provide more information about the analysis.)

[1] Level of service (LOS) is a measure describing operational traffic conditions, in terms of such factors as speed, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. LOS ratings range from LOS A for free-flow conditions to LOS F, which is characterized by forced flow, heavy congestion, stop and go traffic, and long queues behind breakdown points.

The Plan's Mobility Network described in this Systems Development Chapter, combined with Land Use, Systems Management, and Demand Management strategies described in other chapters, are intended to provide the best balance and benefits across all of the RTP goals – Mobility, Accessibility, Reliability, Efficiency, Livability, Sustainability, and Equity.

A FOCUS ON REGIONALLY SIGNIFICANT SYSTEMS

The Plan recognizes that investments in the Regionally Significant Transportation Network will help get the "the most bang for the buck" by investing in infrastructure and services that have the greatest ability to influence the region's long-term growth and mobility needs.

Funding for transportation is scarce, and for several decades now, has not kept up with the public's appetite for travel and demand for transportation services. MOBILITY 2030 recognizes this fact and calls for investing our limited regional transportation funds in a Regionally Significant Transportation Network ("Network"). The regional systems that form the Network consist of interstate freeways and state highways, the Plan's corridor and regional transit services, and a subset of arterials that provide continuous, longer facilities accommodating the highest volumes of regional trips. These multimodal facilities and services that operate on a *regionally significant* scale are essential to meeting the Mobility and Accessibility goals of the region.

Regional facilities and services connect to larger transportation systems beyond the San Diego region's boundaries (freeways and rail networks in other parts of the state and nation) as well as to local systems of streets and roads and transit services in our communities. While all levels of the transportation system – interregional, regional, and local – are considered important, MOBILITY 2030 identifies the Regionally Significant Transportation Network as the Plan's highest priority development through regional transportation funding.

The Plan recognizes that investments in the Network will help get the "the most bang for the buck" by investing in infrastructure and services that have the greatest ability to influence the region's long-term growth and mobility needs. The Mobility Network shown in Figure 6.1 and the regionally significant arterials shown in Figure 6.2 comprise the Plan's Regionally Significant Transportation Network.

Easing the Commute

Investments in transportation capacity are a top regional priority and support growth management objectives when appropriately designed and implemented. MOBILITY 2030 looks into the future to deliver a new transportation vision and plan. It focuses on providing viable travel choices during peak hours when most of our traffic congestion occurs.

Since much of this demand is driven by the need to commute to and from work and school, the Plan looks at incentives for encouraging alternative commuter travel choices. This includes making it more convenient, fast, and safe to ride transit, carpool, or vanpool during peak hours, or bike or walk to work or school. In our fast-paced world, saving time is a very real and powerful incentive for encouraging these more sustainable travel choices.

One of the Plan's major objectives is to provide competitive transit travel times to major job centers, such as downtown San Diego, Sorrento Valley/Sorrento Mesa/UTC, Kearny Mesa, Palomar Airport Road, and Otay Mesa.

One of the Plan's major objectives is to provide competitive transit travel times to major job centers, such as downtown San Diego, Sorrento Valley/Sorrento Mesa/University Towne Centre (UTC), Kearny Mesa, Palomar Airport Road, and Otay Mesa. Figure 6.3 compares the areas located within 30 minutes from downtown San Diego by auto and transit under existing conditions to the areas served with the MOBILITY 2030 improvements in place. Figure 6.4 shows the same 30-minute contours for the Sorrento Valley/Sorrento Mesa/UTC area. New and improved regional transit services and Managed/HOV lanes for carpools, vanpools, and other users will substantially improve accessibility to these major regional job centers.

Relieving Pinch Points

The major capital and service improvements included in MOBILITY 2030 are intended to serve the region's long-term growth in population and employment. These future investments will enhance the regional transportation system's capacity and significantly reduce traffic congestion along several of our major regional travel corridors. Some of the persistent congestion experienced along our region's roadways is the result of "pinch points" where freeway merging and transition moves cause a slowing in traffic. Westbound vehicles traveling on I-8 to connect to I-5, for example, regularly cause traffic to back up on Interstate 8.

Some of the persistent congestion experienced along our region's roadways is the result of "pinch points" where freeway merging and transition moves cause a slowing in traffic.

MOBILITY 2030 sets aside $100 million in funding within the first 10 years of the Plan to improve these pinch points along our regional highway network. Caltrans District 11 has developed a preliminary list of possible improvements that can help provide a "quick fix" to some congested spots (see Technical Appendices). Following the adoption of the Plan, SANDAG and Caltrans will begin developing a prioritized list of these types of improvements. Potential projects include the addition of auxiliary lanes and other small improvements that would allow vehicles to transition to and from the freeways more efficiently. This regional set-aside should help attract additional state revenues, such as State Highway Operations & Protection Program (SHOPP) funds, to help ease congestion hot spots.

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 6.1
2030
MOBILITY NETWORK
April 2003
Transit
Managed/HOV Lanes
General Purpose Lanes
Freeway Connectors
HOV Connectors
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

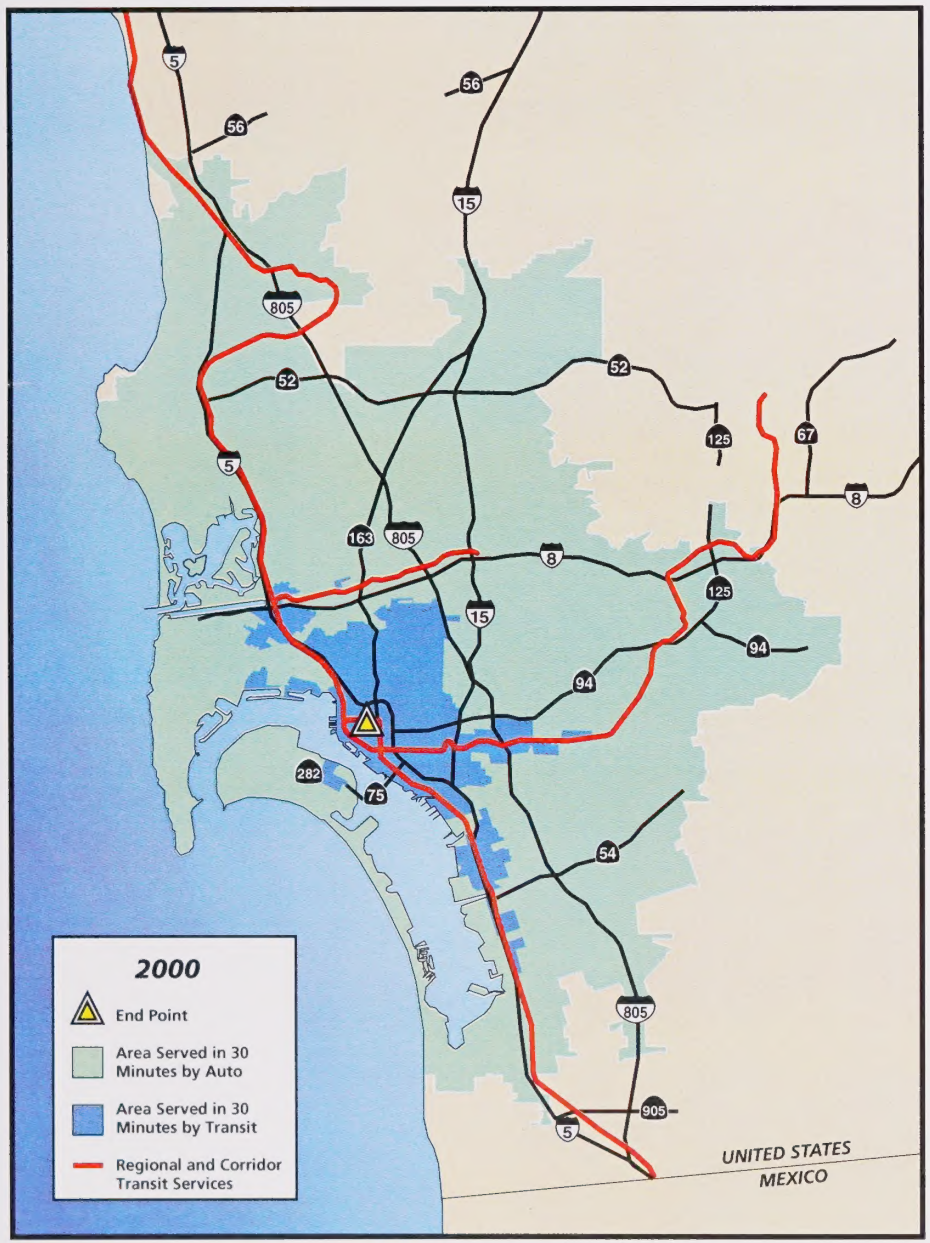
San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 6.2
REGIONALLY SIGNIFICANT ARTERIAL NETWORK
April 2003
Regionally Significant Arterials
Highways
Other Regional Arterials
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

Figure 6.3

DOWNTOWN SAN DIEGO

Travel Time Contours
Area Served in 30 Minutes by Transit and Auto
April 2003

SANDAG



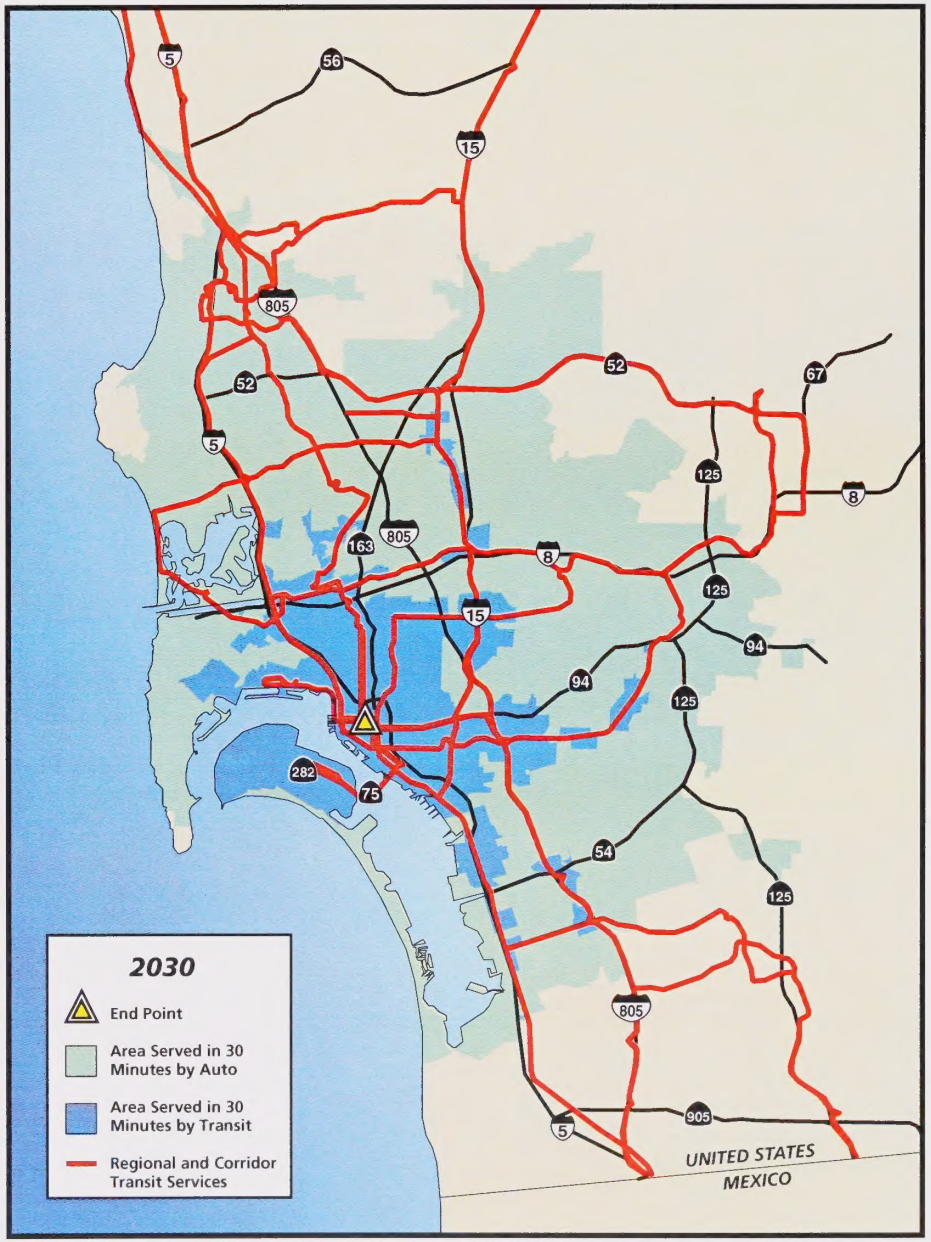


Figure 6.4

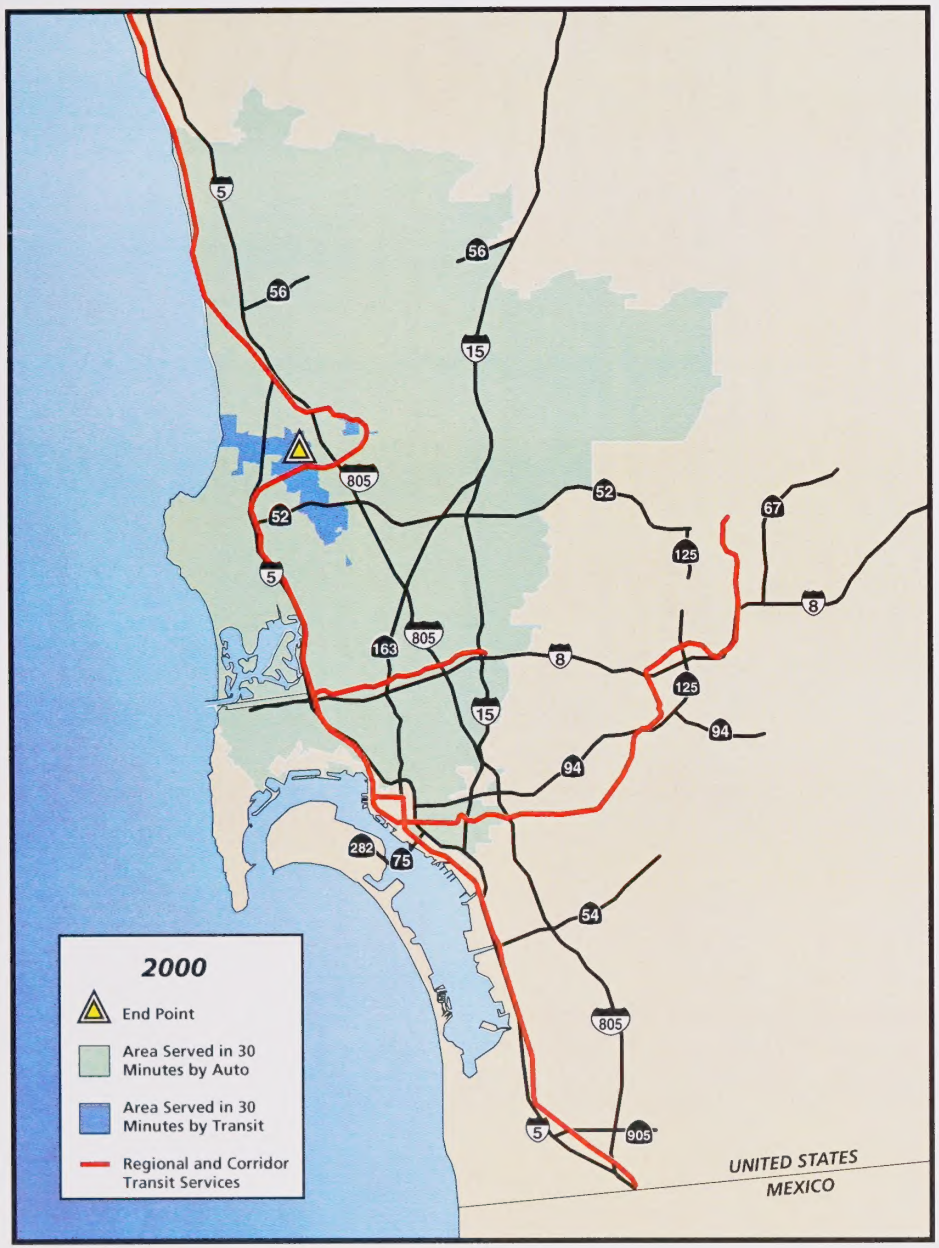
SORRENTO VALLEY / SORRENTO MESA / UTC

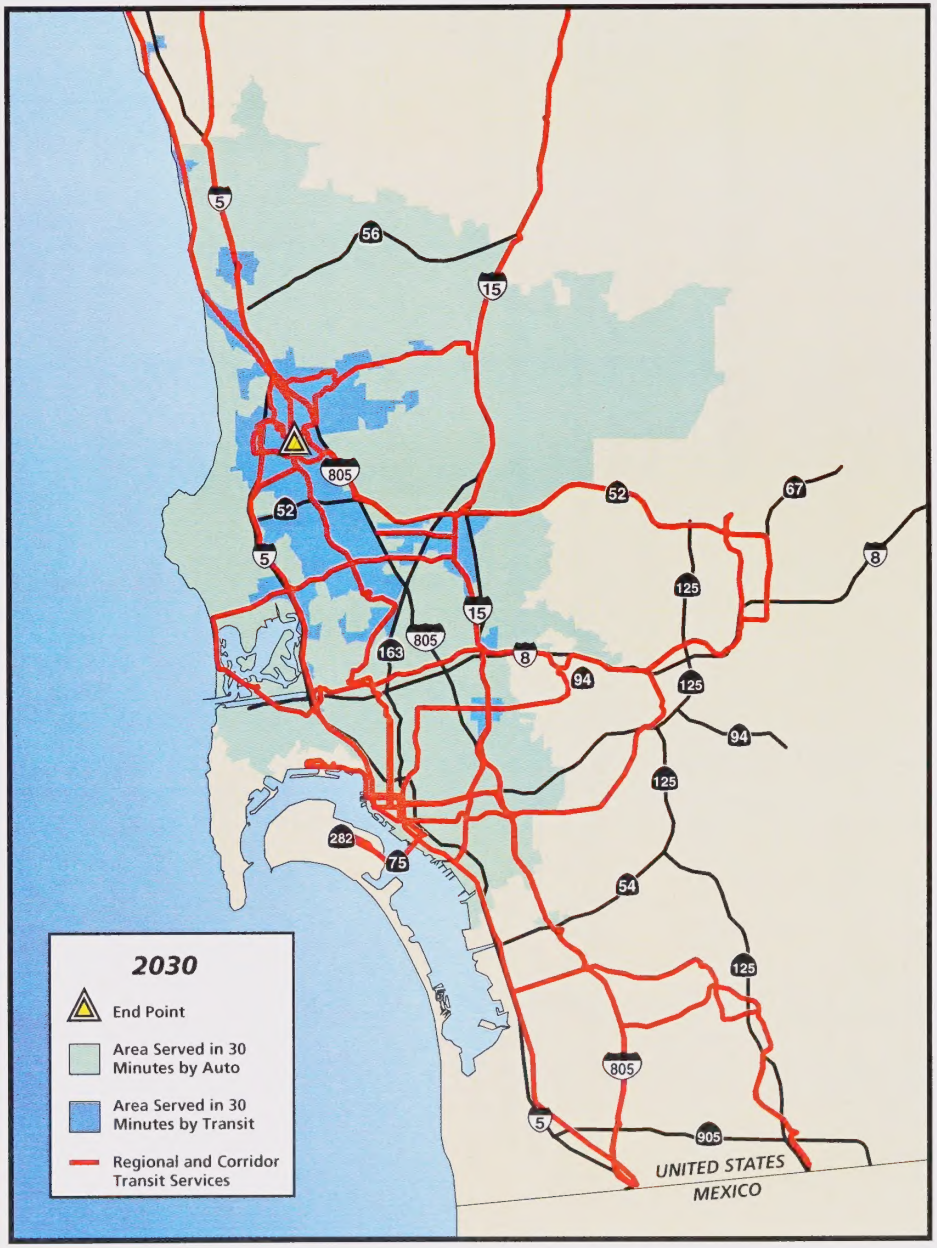
Travel Time Contours
Area Served in 30 Minutes by Transit and Auto

April 2003

SANDAG

MILES
0 1 2 3 4 5
0 1.6 3.2 4.8 6.4 9.6
KILOMETERS
N





REGIONAL TRANSIT VISION

MOBILITY 2030 envisions a regional transit system that is the first choice for many of our trips. The vision for transit was developed in collaboration with SANDAG, MTDB, NCTD, Caltrans, local jurisdictions, and a 50-member Citizens Advisory Committee for Transportation. In late 2001, SANDAG and the two transit agencies adopted the Regional Transit Vision, setting in place the framework for transit improvements in MOBILITY 2030.

The Regional Transit Vision calls for a network of fast, flexible, reliable, safe, and convenient transit services that connect our homes to the region's major employment centers and major destinations.

The Regional Transit Vision (RTV) calls for a network of fast, flexible, reliable, safe, and convenient transit services that connect our homes to the region's major employment centers and major destinations. MOBILITY 2030 takes the first step in implementing the RTV, by putting into service 17 of the Vision's 38 routes. Boosting transit ridership by achieving a double-digit transit mode share during peak periods, with competitive travel times to major job centers, is among MOBILITY 2030's policy objectives.

Other proposed services showcase the integration of public transportation and local land uses, a central theme of MOBILITY 2030. The new routes operate at higher speeds than current transit routes. Stations would be spaced farther apart than current transit services, and there would be priority treatments on highways and arterials in order to attain these higher speeds and ultimately make transit more competitive with the automobile. In our local communities, stations must be integrated into activity centers. These stations will be pedestrian-friendly and bicycle-friendly and serve as pleasant wait environments for transit customers.

The proposed transit services take advantage of a new generation of advance-design vehicles, which have the flexibility of buses and the look and feel of rail.

There is particular attention to the transit customer in the Plan. The proposed transit services take advantage of a new generation of advance-design vehicles, which have the flexibility of buses and the look and feel of rail. These low-floor vehicles along with "smart fare cards" and upgraded stations allow for easier and speedier boarding. Real-time information using "next vehicle" technology will let patrons know when the next vehicle will be arriving.

Regional Market Segmentation

The Regional Transit Vision is based in part on private-sector market research that identified the critical attitudes and preferences that influence San Diegans' daily travel choices. Daily travel needs may include commuting to work or school, shopping for food, clothing, or services, or traveling to the movies or to visit friends. The type and timing of a trip and a variety of other factors influence our decision to travel by transit or private automobile. For instance, if we're taking our kids to the movies, we are probably more likely to drive a car, because of the size of our party and because parking is free at the theater. We may be more likely to take transit to work, if we are traveling at a time when the freeways are most congested, our transit trip is convenient, and we have to pay to park at our work site.

By segmenting the travel market, it is possible to identify potential system changes, which can influence ridership of different groups. For example, increasing transit speeds may attract persons who want to get to their destinations as quickly as they can, while improving the look and feel of transit vehicles may attract those who prefer a more comfortable travel experience over a faster ride.

In preparing updates to their transit plans, MTDB and NCTD undertook extensive surveys of residents from all parts of the region. Conducted in Spring 2000, the surveys were used to better understand the different travel markets in the region and the attributes and sensitivities that are part of a person's decision on the mode he or she chooses for making a trip.

Three primary attitudes found to influence the mode of travel chosen by the region's residents are speed and flexibility, travel experience, and personal safety.

Residents were asked to rate more than 30 attitudinal statements which focused on travel time, cost of commuting, feelings of safety, and convenience. Three primary attitudes were found to influence the mode of travel chosen by the region's residents: (1) speed and flexibility, (2) travel experience, and (3) personal safety. These attitudes affect the choices made by different segments of the population in differing degrees. An understanding of how these attitudes influence who will use transit and the types of trips, allows transit planners to allocate services to the markets in which improved transit services will provide viable mobility options and increase ridership the most.

A Network of Services

Market research, trip movement analysis, and input from local jurisdictions were used to develop four Regional Transit Vision service concepts. Each transit service concept accommodates distinct market needs and together, provides a network of complementary services to the region.

Regional *Yellow Car* services provide the fastest type of service and are designed to serve longer-distance regional trip making. Yellow Car services travel at an average of 40 miles per hour and have limited stops. The Coaster commuter rail system is an existing example of Yellow Car service. These Regional services take advantage of many of the Managed/HOV facilities included in MOBILITY 2030. Examples of new Regional services include a route connecting Escondido and the I-15 corridor with Centre City and the San Diego International Airport, and a route that connects the rapidly growing Otay Ranch area and the I-805 corridor with Centre City and Sorrento Mesa job centers.

Corridor-level *Red Car* services provide rapid, very frequent transit services along the region's major travel corridors. Average speed for Red Car service is 25 miles per hour, and stops are more frequent than Yellow Car services. The San Diego Trolley is an existing example of Red Car service. An example of the new Corridor services is the Oceanside-Escondido Rail line, which provides service to the SR 78 corridor and is proposed to be extended to North County Fair.

The two remaining service concepts provide critical feeder and shuttle services to the Yellow and Red Car networks. *Blue Car* services are essentially the local bus network serving shorter-distance trips within our communities with frequent stops. *Green Car* services are local shuttles that circulate through local communities and employment centers to connect people to and from their homes and work sites and the Yellow and Red Car networks. MOBILITY 2030 proposes increases to the capital and operating budgets of existing local bus service (25 percent in the MTDB area and 75 percent in the NCTD area). Local circulators also are expanded under the Plan, with detailed routing to be determined closer to the implementation of service.

Table 6.1 lists the new Yellow and Red Car transit services and their proposed headways (frequency of service) during peak and off-peak periods, along with proposed service improvements to existing rail services. The corresponding network of Regional (Yellow Car) and Corridor (Red Car) services included in MOBILITY 2030 is depicted in Figure 6.5.

Investments in Existing and New Transit Services. MOBILITY 2030 calls for modest increases in local bus services, particularly in the metropolitan area (MTDB service area). The metropolitan system is fairly extensive and requires the majority of operating dollars through 2030. However, these services provide important feeder services to new Regional and Corridor services, serve many non-work and local trips, and are critical to the basic mobility service in many of our neighborhoods.

As new corridors are served by more innovative transit services, including bus rapid transit (BRT), there will be opportunities to modify existing services and convert operating funds from existing to new services. These modifications will be evaluated as more detailed corridor planning is completed and as new services are brought on-line.

Sixty percent of total transit capital funding is dedicated to the new, rapid Regional and Corridor services included in MOBILITY 2030, while the remaining 40 percent is invested in existing and planned rail systems, such as the Coaster commuter rail and Trolley.

Implementing the Regional Transit Vision

Early Action Projects. MTDB, NCTD, and SANDAG have worked cooperatively to develop a number of short-range transit projects that will put the Regional Transit Vision on the street for people to experience first hand. These early action projects are expected to be implemented over the next three to five years. Like the El Cajon Boulevard showcase project included in MOBILITY 2030, the early action projects will reveal the customer experience called for in the Regional Transit Vision, demonstrate the integration of transit and land use policies, and help build public support for future investments.

The early action transit projects will demonstrate the integration of transit and land use policies, and help build public support for future investments.

Preliminary engineering and design studies are underway on many of the early action projects, and the results of these initial studies are expected to be available over the next year, prior to the next RTP cycle. To advance the early action project(s) once preliminary studies are complete, MOBILITY 2030 sets aside $80 million within the first 10 years of the Plan to fund project capital needs.

MOBILITY 2030 includes $200 million for regional rail grade separations.

Regional Rail Grade Separations. Many of the new or improved Yellow and Red Car services in MOBILITY 2030 use regional arterials and traverse the street network. As transit service frequency is increased over time, it will become important to examine the need for light rail grade separations at critical intersections throughout the region. MOBILITY 2030 includes $200 million for regional rail grade separations, and calls for SANDAG, working with the transit agencies and local jurisdictions, to develop a regional evaluation process and criteria to prioritize intersections, such as along the Blue Line Trolley in South Bay and the Oceanside-Escondido Rail in the North County area. The $200 million is intended to fund those top priority projects as determined through this regional evaluation.

Transit Center Parking Needs. Providing adequate parking at existing major transit stations as well as at future stations is essential to the success of the Regional Transit Vision. In June 2002, SANDAG conducted a study of parking demand at Coaster commuter rail stations on behalf of NCTD. The study concluded that the lack of adequate parking is a detriment to increased commuter rail ridership and quantified future parking needs at each station. The study showed that 40 percent of Coaster riders drive alone to the station. (This is consistent with other commuter rail operations such as Metrolink which operates in the Southern California region.)

MOBILITY 2030 includes nearly $1.7 billion of funding for improvements to existing stations serving the Coaster and Trolley and for new Yellow and Red Car stations. Improvements include additional parking, real-time information displays, and other customer features.

MOBILITY 2030 includes nearly $1.7 billion of funding for improvements to existing stations serving the Coaster and Trolley as well as for new Yellow and Red Car stations. Proposed improvements include additional parking, real-time information displays, and other customer features that integrate transit stations into community centers. The Plan calls for SANDAG, working with MTDB and NCTD, to conduct a regional parking study to assess demand at major stations and prioritize needed improvements.

Freeway Shoulder Use. Many of the Plan's new Regional and Corridor services ultimately take advantage of the Managed/HOV network proposed in MOBILITY 2030. However, for the newer transit services that are moving ahead of the completion of Managed/HOV facilities, MOBILITY 2030 assumes that these services would operate on freeway shoulder lanes on a limited basis during congested periods. Limited use of freeway shoulder lanes would allow transit services to bypass traffic "pinch points" and provide competitive travel times. MTDB and Caltrans are currently developing a demonstration project along a segment of SR 163 to test the use freeway shoulders for transit in 2003.

TABLE 6.1—NEW OR IMPROVED TRANSIT ROUTES

SEQ. #	DESCRIPTION	PEAK HEADWAY (minutes)	OFF-PEAK HEADWAY (minutes)
1	Increase in Existing Coaster Service (current headways 36/120) *	20	60
2	Increase in Oceanside to Escondido Rail Service (opening headways 30/30)	10	10
3	Temecula to Sorrento Mesa via I-15/Mira Mesa Boulevard	15-30 **	30-60 **
4	Oceanside to Escondido via Palomar Airport Road	10	10
5	Northeast Oceanside to Sorrento Mesa via El Camino Real/I-5	10	10
6	Increase in Existing Blue Line Trolley Service (current headways 7½/15)	7½	7½
7	Increase in Existing Orange Line Trolley Service (current headways 15/15-30)	7½	15-30***
8	Mid-Coast from Old Town to Sorrento Mesa	7½	15
9	Escondido to Centre City & Airport via I-15/ SR 94	5	10
10	El Cajon Boulevard to Centre City	5	10
11	Old Town to Kearny Mesa via Mission Boulevard/Balboa Avenue	10	10
12	32nd Street to Kearny Mesa via I-15/Kearny Mesa Transitway	5	10
13	Coronado and Centre City to Sorrento Mesa via Hillcrest/Genesee Avenue	5	10
14	H Street Trolley to Eastlake via Southwestern College	30	30
15	Centre City to Otay Mesa via SR 94/I-805	5	10
16	El Cajon to Sorrento Mesa via SR 52	10	No service
17	San Ysidro to Sorrento Mesa via I-805/I-15	5	10

* average headways

** peak headways at 15 minutes to Escondido and 30 minutes to Temecula; off-peak headways at 30 minutes to Escondido and 60 minutes to Temecula

*** off-peak headways at 15 minutes to El Cajon and 30 minutes to Santee

Accessible Transportation. The American with Disabilities Act (ADA) requires that all transit vehicles have wheelchair lifts and other equipment to make them accessible to persons with disabilities. In addition, transit operators must provide a complementary service for those persons who, because of their disabilities, are unable to travel to the transit station.

In compliance with federal and state regulations, all transit vehicles in the region are equipped with lifts and other accessibility features. A complementary paratransit system also is in place, providing curb-to-curb services to those who are ADA certified eligible.

In addition, MOBILITY 2030 supports continued coordination of activities to provide transit to those who are transit dependent, but who are not eligible for ADA accessible service, or who are clients of non-profit agencies. The Plan encourages the study of providing additional services to rural and other non-urban communities and for seniors and persons with disabilities.

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
PACIFIC OCEAN
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 6.5
2030
TRANSIT NETWORK
Regional and
Corridor Services
April 2003
All Day
Corridor Service
All Day
Regional Service
Peak Period Only
Regional Service
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

Coastal Rail Improvement Program

Our coastal rail corridor, a predominantly single-track railway, is shared by commuter and intercity passenger and freight rail services. On an annual basis, 1.8 million commuters ride Coaster trains south or Metrolink trains north from Oceanside using the coastal rail corridor. The corridor is part of Amtrak's second busiest intercity rail corridor nationwide (carrying another 1.8 million annual passengers), and the coastal corridor is served by Burlington Northern Santa Fe freight rail services. Facing shared challenges, MOBILITY 2030 targets critical improvements in areas that will benefit all users of the coastal rail corridor.

Our coastal rail corridor, a predominantly single-track railway, is shared by commuter and intercity passenger and freight rail services. Facing shared challenges, MOBILITY 2030 targets critical improvements in areas that will benefit all users of the coastal rail corridor.

The Plan includes substantial improvements to the corridor, including the completion of double tracking the rail line between Orange County and Centre City San Diego and tunnels at Del Mar and University City, conditional upon appropriate environmental impact analyses. Because intercity rail services share the coastal rail corridor with commuter rail and freight operations, the Plan assumes that 75 percent of the rail and tunnel improvements will be funded by non-local sources, such as Amtrak or other federal and state revenue sources. For nearly 30 years, the State of California has supported Pacific Surfliner services both with capital and operating assistance. Over this period, 87 percent of capital funding has been contributed by state and federal sources.

MOBILITY 2030 includes substantial improvements to the coastal rail corridor, including the completion of double tracking the rail line between Orange County and Centre City San Diego and tunnels at Del Mar and University City.

Amtrak's intercity passenger rail network connects the region to the rest of the nation with stations at downtown San Diego, Solana Beach, and Oceanside. Our region is part of Amtrak's Pacific Surfliner Corridor, a 351-mile corridor that stretches between San Diego to Los Angeles to San Luis Obispo. The Pacific Surfliner is one of Amtrak's busiest, second only to the Northeast Corridor. Two-thirds of the 1.8 million annual Amtrak passengers use the region's three intercity stations. Figure 6.6 displays the Southern California intercity rail network.

The Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor Agency coordinates planning and programming on the coastal rail line. SANDAG, MTDB, and NCTD are voting members of LOSSAN along with regional transportation and planning agencies in Orange, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties. LOSSAN sets priorities for improvements in the corridor that will increase the capacity of the rail line and the reliability of service. NCTD is the owner of the railway between the Orange County line and the southern limits of the City of Del Mar. MTDB owns the railway south to the Santa Fe Depot in the City of San Diego. NCTD operates and maintains the entire San Diego County portion of the LOSSAN corridor.

In March 2001, Amtrak completed a 20-year long-range planning strategy for Amtrak California services that calls for significant improvements to the Pacific Surfliner. Caltrans also regularly updates its five- and ten-year statewide plans for conventional rail services. These plans are the basis for planned improvements in the coastal rail corridor. Intercity passenger rail service is subsidized by Amtrak, the State of California, and local agencies. Over the past ten years, Amtrak and the State of California have made significant investments in the corridor, and have invested more than $1.5 billion statewide, while local agencies have contributed another $500 million. These have resulted in faster, more frequent and convenient service, improved stations, and increased ridership through the coastal corridor.

High-speed rail trains could reach speeds in excess of 200 miles per hour in more rural areas on a dedicated, fully-grade-separated system, making it possible to travel from San Diego to San Francisco in under four hours.

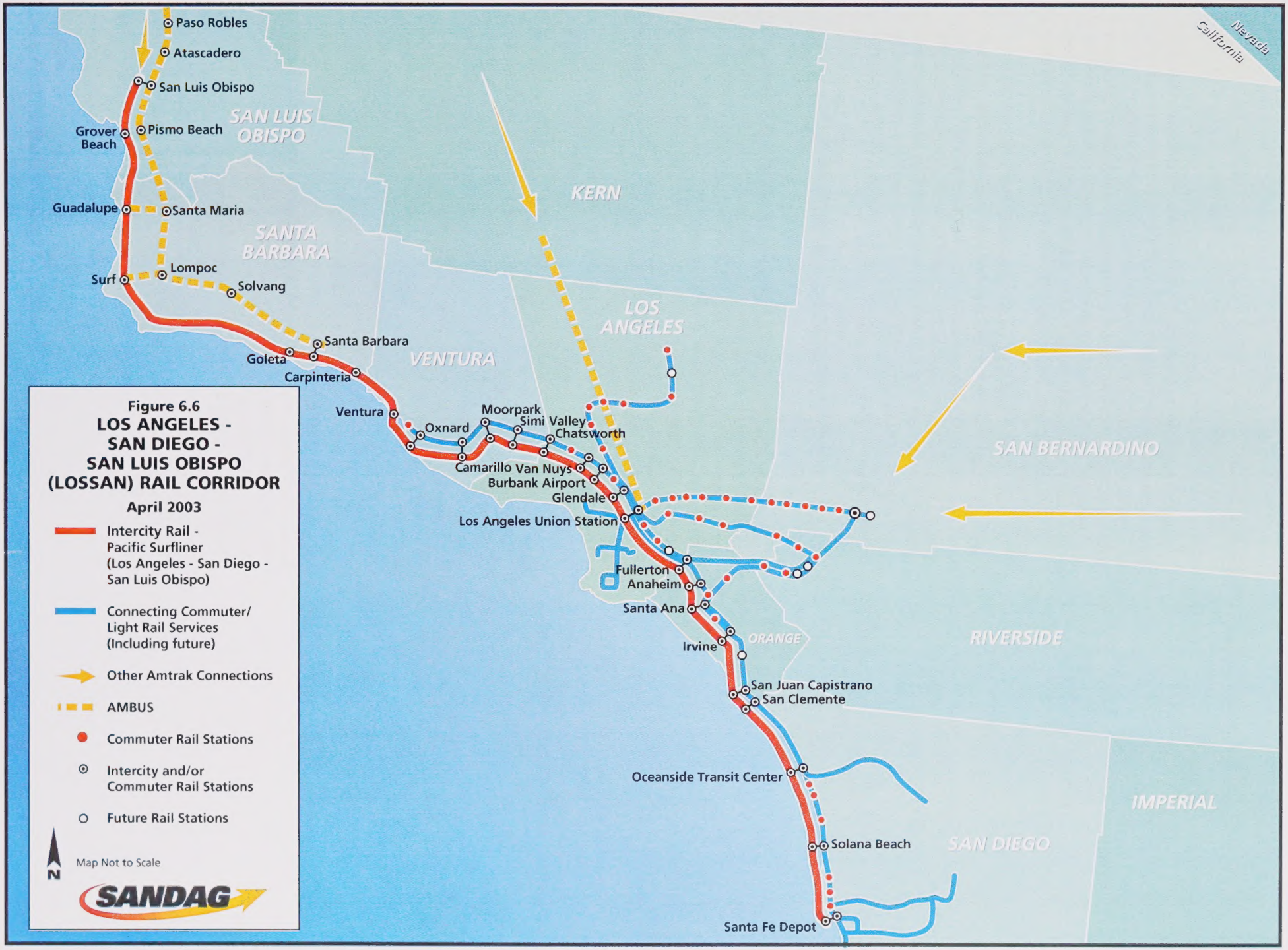
High-Speed Rail Services

The California High-Speed Rail Authority (Authority) was created by the California Legislature in 1996 to develop a plan for the construction, operation and financing of a statewide, intercity high-speed passenger rail system. The Authority has developed plans for a 700-mile system which consists of five corridors connecting the major metropolitan areas of the state. Trains could reach speeds in excess of 200 miles per hour in more rural areas on a dedicated, fully-grade-separated system, making it possible to travel from San Diego to San Francisco in under four hours, according to preliminary travel time analyses.

The San Diego region would be connected to the proposed high-speed rail system by two potential corridors – the Inland Corridor and the Coastal Corridor. The Inland Corridor (Los Angeles to San Diego via Riverside County) stretches from the Los Angeles area through the Riverside and Temecula areas to downtown San Diego via Interstate 15. The Coastal Corridor (Los Angeles to San Diego via Orange County) stretches from the Los Angeles area through Orange County to San Diego with stops tentatively identified at Oceanside, University Towne Centre, and downtown San Diego.

Recent decisions by the Authority's Board of Directors have (1) eliminated magnetic levitation (Maglev) technology from further study and (2) specified that the Coastal Corridor south of Orange County will be shared-use and an incrementally improved corridor.

The San Diego Regional High-Speed Rail Task Force was appointed by the SANDAG Board in early 1999 to monitor the Authority's work and to advise the Board on the high-speed rail plans. The Task Force includes representatives from SANDAG's Transportation Committee, MTDB's I-15 Policy Advisory Committee, the Authority, LOSSAN, NCTD, MTDB, Caltrans, and the U.S. Department of Defense.


Paso Robles
Atascadero
San Luis Obispo
SAN LUIS OBISPO
Grover Beach
Pismo Beach
Guadalupe
Santa Maria
SANTA BARBARA
Surf
Lompoc
Solvang
Santa Barbara
Goleta
Carpinteria
VENTURA
KERN
LOS ANGELES
Ventura
Oxnard
Moorpark
Simi Valley
Chatsworth
Camarillo
Van Nuys
Burbank Airport
Glendale
Los Angeles Union Station
SAN BERNARDINO
Fullerton
Anaheim
Santa Ana
ORANGE
RIVERSIDE
Irvine
San Juan Capistrano
San Clemente
Oceanside Transit Center
IMPERIAL
Solana Beach
SAN DIEGO
Santa Fe Depot
Nevada
California
Figure 6.6
LOS ANGELES - SAN DIEGO - SAN LUIS OBISPO (LOSSAN) RAIL CORRIDOR
April 2003
Intercity Rail - Pacific Surfliner (Los Angeles - San Diego - San Luis Obispo)
Connecting Commuter/ Light Rail Services (Including future)
Other Amtrak Connections
AMBUS
Commuter Rail Stations
Intercity and/or Commuter Rail Stations
Future Rail Stations
N
Map Not to Scale
SANDAG

The Authority has received funding from the state to conduct the environmental and engineering design analysis for each corridor as well as to develop a statewide program-level environmental document. The Authority's high speed rail analyses are expected to be completed after MOBILITY 2030 is adopted. Therefore, the Plan does not assume high speed rail improvements, which will be incorporated into a future RTP as proposed alignments and other project specifics are developed.

High-Speed Ferry Service

The Port of San Diego is sponsoring a high speed ferry demonstration project providing service between Oceanside and downtown San Diego. Beginning in 2003, the trial service will provide one round trip per day during the peak commuter periods. The Port will evaluate this service after the one-year demonstration period in order to determine if the service should be expanded in the future.

A FLEXIBLE ROADWAY SYSTEM

Roadways in the region serve multiple purposes and accommodate different types of travel. They accommodate transit vehicles, automobiles, movement of freight, and bicycles. The local streets and arterials connecting our communities are typically used for shorter trips, while the region's highways link our homes with major job and activity centers and accommodate our longer trip needs. MOBILITY 2030 recognizes that improvements and capacity enhancements are needed to improve mobility on our highways and regional arterial networks, especially where transit and other alternatives are not as feasible as they are in the region's more urbanized areas.

The Plan's 2030 vision is for a flexible highway system in which the same lanes used by transit also are utilized by carpools, vanpools, and fee-paying patrons.

The Plan's 2030 vision is for a *flexible* highway system in which the same lanes used by transit also are utilized by carpools, vanpools, and fee-paying patrons (similar to FasTrak™ where fees fund transit services in the I-15 corridor). As shown in Figure 6.7, MOBILITY 2030 includes an extensive network of Managed/HOV lanes which are critical to many of the Plan's regional transit services. These lanes operate at free flow speeds, provide a quicker ride to high occupancy vehicles, and several of them also serve solo drivers who want to pay a fee to save time. Table 6.2 summarizes the major capital improvements included in MOBILITY 2030. Highway and regional arterial improvements in the Plan are integrated and coordinated to support as well as complement the expanded transit system.

Completing Regional Highways

MOBILITY 2030 includes the funding to maintain and preserve the existing highway system (see Chapter 4 – Financial Strategies). Improving the efficiency of the regional transportation system also is one of the Plan's priorities, and Systems Management and Demand Management strategies are discussed in detail in Chapters 7 and 8.

The Plan will complete highways such as SR 56 between Interstates 5 and 15, SR 52 to Santee, and State Routes 11, 125, and 905 serving the South Bay and our border with Mexico.

After these basic needs, the Plan's priorities are completing missing links in the regional highway system and developing a Managed/HOV lane network that will serve multiple modes. The Plan will complete highways such as SR 56 between Interstates 5 and 15, SR 52 to SR 67 in Santee, and State Routes 11, 125, and 905 serving the South Bay and our border with Mexico. These same facilities serve both commuter and freight travel in the region. Three new freeway to freeway connections will be completed along Interstate 5 at its junctions with Interstate 8 and State Routes 56 and 78, and the interim connectors at State Routes 94/125 will be replaced with a full facility. Highway capital improvements make up about $11 billion of the Plan.

The Managed/HOV Network

Unlike neighboring Orange and Los Angeles Counties to the north, the San Diego region lacks an HOV network on our regional highways. Currently, about 16 miles of mainline HOV facilities exist on portions of Interstates 5, 15, and 805 and SR 54. MOBILITY 2030 will develop a robust Managed/HOV network that includes major four-lane managed facilities on Interstates 5, 15, and 805 and east-west HOV facilities on State Routes 52, 54, 56, 78, 94, and 125 (totaling more than 200 mainline miles). The managed lane facilities on Interstates 5 and 805 are modeled after the I-15 Managed Lanes project.

The I-15 model showcases the integration of transit and roadways into a flexible transportation system for the corridor. Currently under development, the I-15 Managed Lanes will create a 20-mile managed lane facility between State Routes 163 and 78. When completed, it will feature a four-lane HOV facility with a movable barrier (similar to the movable barriers on the San Diego-Coronado Bridge), multiple access points to the regular highway lanes, and direct access ramps for buses and other high occupancy vehicles. A high frequency rapid bus system would operate in these lanes, connecting North County areas to job centers at Sorrento Valley/Sorrento Mesa/UTC and downtown San Diego. The project is an innovative solution to the growing traffic congestion in the corridor that will offer a premium level of service to transit users, ridesharers, and solo paying commuters during rush hours. During the off-peak periods, these same lanes could be used to facilitate goods movement through the region.

TABLE 6.2—MOBILITY 2030 - MAJOR CAPITAL IMPROVEMENTS

Transit Facilities	Cost ($ millions)
Mission Valley East Trolley Extension	$450
Oceanside to Escondido Rail	$350
Sorrento Mesa Transitway	$500
Kearny Mesa Transitway	$300
Mid-Coast Light Rail	$590
Oceanside-Escondido Rail Double Tracking and North County Fair Extension	$170
Coastal Rail Double Tracking and Other Improvements*	$420
Coastal Rail Tunnels at University City and Del Mar*	$1,250
Regional Light Rail Grade Separations	$200
Early Action Project Funding	$80
Improved/New Major Transit Stations and Centers	$1,670
Direct Access Ramps to Managed/HOV Lanes	$1,080
Vehicles for New Regional and Corridor Transit Services	$550
Arterial Transit Priority Improvements	$890
Subtotal	$8,500

HOV and Managed Lane Facilities					
Freeway	**From**	**To**	**Existing**	**Improvements**	
I-5	SR 905	SR 54	8F	8F + 2 HOV	$130
I-5	SR 54	I-8	8F	8F + 2 HOV	$900
I-5	I-8	I-805	8F	10F + 2HOV	$440
I-5	I-805	SR 56	14F	14F + 4ML	$30
I-5	SR 56	Leucadia Blvd.	8F	10F + 4ML	$530
I-5	Leucadia Blvd.	Vandegrift Blvd.	8F	8F + 4ML	$370
I-8	SR 125	SR 67	8F	8F + 2HOV	$130
I-8	SR 67	2nd Street	6F	6F + 2HOV	$40
I-15	SR 94	SR 163	6F/8F	8F + 2HOV	$200
I-15	SR 163	SR 56	8F + 2ML(R)	8F + 4ML/MB	$200
I-15	SR 56	Centre City Pkwy.	8F	8F + 4ML/MB	$340
I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120
SR 52	I-805	I-15	6F	6F + 2HOV	$70
SR 52	I-15	SR 125	4F	6F + 2ML (R)	$170
SR 54/SR 125	I-5	SR 94	6F/4F+2HOV	6F + 2HOV	$120
SR 56	I-5	I-15	4F	6F + 2HOV	$180
SR 78	I-5	I-15	6F	6F + 2HOV	$500
SR 94/SR 125	I-5	I-8	8F/6F	8F + 2HOV	$500
SR 241**	Orange County	I-5	---	4T + 2HOV	$420
I-805	SR 905	SR 54	8F	8F + 4ML	$300
I-805	SR 54	I-8	8F	8F + 4ML	$450
I-805	Mission Valley Viaduct		8F	8F + 4ML	$250
I-805	I-8	I-5	8F	8F + 4ML	$380
				Subtotal	$6,770

HOV Connectors					Cost ($ millions)
Freeway	**Intersecting Freeway**		**Movement**		
I-5	I-805		North to North & South to South		$180
I-15	SR 78		East to South & North to West		$200
I-15	SR 94		South to West & East to North		$150
I-805	SR 52		West to North & South to East		$150
				Subtotal	$680
Highway System Completion					
Freeway	**From**	**To**	**Existing**	**Improvements**	
I-5/I-805	Port of Entry – Mexico		---	Inspection Facility	$20
SR 11	SR 905	Mexico	---	4F	$190
SR 52	SR 125	SR 67	---	4F	$290
SR 56	Camino Ruiz	Carmel Country	---	4F	$130
SR 125**	SR 905	San Miguel Rd.	---	4T	$400
SR 125	San Miguel Rd.	SR 54	---	4F	$140
SR 125	Jamacha Road	SR 94	---	6F	$170
SR 125	Navajo Road	Grossmont	---	6F	$70
SR 905	I-805	Mexico	---	6F	$290
				Subtotal	$1,700
Highway Widening, Arterials, and Freeway Interchanges					
Routes	**From**	**To**	**Existing**	**Improvements**	
I-5	I-805	SR 56	10F	14F	$190
I-8	2nd Street	Los Coches	4F	6F	$30
SR 52	I-5	I-805	4F	6F	$80
SR 67	Mapleview St.	Dye Road	2C	4C	$240
SR 75/SR 282***	Glorietta Blvd.	Alameda Blvd.	6C	6C + 2TU	$300
SR 76	Melrose Drive	I-15	2C	4C	$180
SR 94	SR 125	Jamacha Road	4F/4C	6F/6C	$70
SR 94	Jamacha Road	Steele Canyon Rd.	2C	4C	$20
SR 125**	SR 905	San Miguel Road	4T	8T	$110
SR 125	San Miguel Rd.	SR 54	4F	8F	$60
Regionally Significant Arterials and Local Freeway Access Interchanges					$500
				Subtotal	$1,780
Freeway Connectors					
Freeway	**Intersecting Freeway**		**Movement**		
I-5	I-8		East to North & South to West		$200
I-5	SR 56		West to North & South to East		$140
I-5	SR 78		West to South & South to East		$150
SR 94	SR 125		West to North & South to East		$110
				Subtotal	$600
				Total	**$20,030**

KEY:

C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

* funding from state/federal discretionary transportation funding sources
** privately funded
*** funding from federal discretionary defense funding sources

San Diego Region
MAP AREA
Camp Pendleton
4C
8F
4E
8F
2C
Oceanside
8F+4ML
Vista
San Marcos
6F+2HOV
Carlsbad
8F+4ML
Escondido
8F+4ML
2C
2C
Encinitas
10F+4ML
8F+4ML/MB
2C
PACIFIC OCEAN
Solana Beach
Poway
Del Mar
6F+2HOV
4C
County of San Diego
8F+4ML/MB
14F+4ML
8F+4ML
6F+2ML (Reversible)
6F+2HOV
Santee
4F
6F
4F
6F+2HOV
10F+2HOV
San Diego
8F+2HOV
6F
6F
8F
10F
El Cajon
La Mesa
8F+2HOV
8F+2HOV
4F
6F
8F+2HOV
8F+2HOV
Lemon Grove
4C
6F+2HOV
6F
6C+2TU
8F+2HOV
Coronado
National City
8F+4ML
8F
2C
6F+2HOV
8T
8F+2HOV
8F+4ML
Chula Vista
Imperial Beach
4F
6F
4F
8F
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 6.7
2030
HIGHWAY NETWORK
April 2003
Managed/HOV Lanes
General Purpose Lanes
Freeway Connectors
HOV Connectors
C = Conventional Highway
E = Expressway
F = Freeway
HOV = High Occupancy Vehicle
MB = Movable Barrier
ML = Managed Lanes
T = Toll Road
TU = Tunnel
MILES
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KILOMETERS
N
SANDAG

In addition to mainline Managed/HOV facilities, MOBILITY 2030 includes direct HOV to HOV connectors at the I-5/I-805 merge and three other interchanges where major HOV facilities intersect. The direct HOV to HOV connectors proposed in the Plan were selected based on the volume of HOV traffic connecting from one facility to another and/or to improve the flow of traffic between facilities (i.e., minimize weaving and merging conditions).

Completing the Arterial Network

Like highways, the arterial network plays a role in improving regional transit as well as serving subregional trips.

MOBILITY 2030 funds transit priority treatments on arterials, such as traffic signal priority measures (priority for transit by extending the green phase of the traffic light, for example), "queue jumpers" to bypass bottlenecks on local streets, and grade separations, where needed. The Plan includes major transit capital projects (Figure 6.8), such as transitways, double tracking, and direct access ramps between freeway HOV lanes and major transit stations. These link regional arterials to the Managed/HOV network and transitways at strategic locations like major stations, providing transit vehicles with easy access to the regional network.

MOBILITY 2030 funds transit priority treatments on arterials, such as traffic signal priority measures (priority for transit by extending the green phase of the traffic light, for example), "queue jumpers" to bypass bottlenecks on local streets, and grade separations.

Completing the arterial component of the Regionally Significant Transportation Network is a priority in MOBILITY 2030. In addition to major transit and highway improvements, the Plan sets aside regional transportation dollars to improve regionally significant arterials. These arterials provide critical links to the highway network and serve as alternative routes to the highways themselves.

The Plan includes a $500 million regional set-aside to improve and enhance regionally significant arterials. Completing the arterial component of the Regionally Significant Transportation Network (Figure 6.2) has an estimated price tag of $700 million for capacity expansion projects (i.e., widening and extensions) as well as access improvements from regionally significant arterials to the freeway system. These planned improvements are identified in the local circulation elements of the cities and county. The regional funding is intended to be matched with revenues from the local jurisdictions, which are responsible for improving regional roadways and local streets to meet their residents' needs and mitigate the effects of local land use developments.

The Plan includes a $500 million regional set-aside to improve and enhance regionally significant arterials.

MOBILITY 2030 funds additional arterial improvements besides capacity enhancing projects. These include traffic signal coordination, traffic detection systems, transit priority measures, and management systems needs to optimize the arterial network and integrate arterial operations with other modes (see Chapter 7).

A Corridor Approach

MOBILITY 2030 recognizes the importance of planning from both a regional perspective as well as within a subregional context. The Plan realizes that no one size fits all, as the long-term performance of transportation facilities and services is heavily dependent on surrounding land uses and nearby communities. While the individual facilities and services that make up the regional transportation system are most often grouped by mode, Figures 6.9 and 6.10 focus on the North County and South County subregions, respectively. These provide a multimodal look at the interaction of the highway, transit, and arterial improvements planned for the northern and southern portions of the region.

This corridor approach considers multiple facilities, modes, jurisdictions, and land uses. The objective is to select the most effective mix of strategies to improve mobility within a specific corridor.

The individual modal improvements in the Mobility Network are tailored to supporting land uses in major travel corridors. They build upon multimodal systems already in place and add preferred improvements recommended under completed or ongoing transportation planning studies (see Appendix D). This corridor approach considers multiple facilities, modes, jurisdictions, and land uses. The objective is to select the most effective mix of strategies to improve mobility within a specific corridor.

To improve sustainability, MOBILTY 2030 focuses major roadway and transit improvements in urban/suburban areas of the region, encouraging future growth away from the region's more rural areas. However, the Plan recognizes the need to address the unique transportation issues facing the region's rural communities, particularly those affected by the growing number of Indian gaming facilities. The Plan includes a Rural Transportation Needs Assessment Study to evaluate rural mobility and access needs (see Appendix D).

Accommodating bicycle and pedestrian travel also is important as we develop our regional highways and arterials. New highway and arterial facilities, such as freeway interchanges or widened arterial streets, should be designed to encourage bicycle and walking, and should not be a barrier to those trips.

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
PACIFIC OCEAN
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 6.8
2030
TRANSIT NETWORK
Major Capital Projects
April 2003
Dedicated Transitway
New Light Rail Transit
Coastal Rail Double Tracking and Tunnels
2030 Transit Network
Direct Access Ramps
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

San Diego Region
MAP AREA
Camp Pendleton
County of San Diego
Oceanside
Vista
San Marcos
Escondido
Carlsbad
PACIFIC OCEAN
Encinitas
Solana Beach
Del Mar
Poway
76
15
5
78
56
Figure 6.9
2030
MOBILITY NETWORK
North County Detail
April 2003
Transit
Managed/HOV Lanes
General Purpose Lanes
Arterial Modifications
Freeway Connectors
HOV Connectors
Direct Access Ramps
MILES
0 1 2 3
0 1.61 3.22 4.83
KILOMETERS
N
SANDAG

Del Mar
Poway
San Diego Region
MAP AREA
PACIFIC OCEAN
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
County of San Diego
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 6.10
2030
MOBILITY NETWORK
South County Detail
April 2003
Transit
Managed/HOV Lanes
General Purpose Lanes
Arterial Modifications
Freeway Connectors
HOV Connectors
Direct Access Ramps
MILES
0 1 2 3
0 1.61 3.22 4.83
KILOMETERS
N
SANDAG

PLANNING ACROSS BORDERS

MOBILITY 2030 looks beyond the San Diego region to link transportation and land use planning across our borders with Orange, Riverside, and Imperial Counties, and Baja California, Mexico. The SANDAG Borders Committee provides oversight for binational planning and interregional planning programs under its purview and advises the SANDAG Board of Directors on major interregional planning policy-level matters.

The 2030 Regional Growth Forecast recognizes interregional travel trends and account for future housing for our workers both within the San Diego region as well as outside of the region's boundaries.

The last several years have seen a steady increase in interregional and international commuting, as more people are choosing to live in Riverside County and Baja California, Mexico, while keeping their jobs here. New with MOBILITY 2030, the 2030 Regional Growth Forecast recognizes these travel trends and account for future housing for our workers both within the San Diego region as well as outside of the region's boundaries.

I-15 Interregional Partnership Program

MOBILITY 2030 incorporates border transportation activities currently underway – the I-15 Interregional Partnership (I-15 IRP) and binational planning efforts. The I-15 IRP is a voluntary partnership of local officials representing SANDAG and the Western Riverside Council of Governments. The I-15 IRP is working to identify and prioritize issues as well as recommend short- and long-term solutions related to the jobs/housing imbalance and traffic congestion along the north I-15 corridor. Short-term strategies have been proposed, and long-term strategies are currently under development. This study is scheduled to be completed in 2004.

Today, 37 percent of the vanpools participating in SANDAG's Regional Vanpool Program originate from Riverside County.

Short-term strategies from the I-15 IRP include promotion of transportation demand management (TDM) strategies, including interregional coordination of rideshare programs between Riverside County Transportation Commission (RCTC) and SANDAG, implementing park and ride lots along the I-15 corridor, and joint marketing and promotion of alternative transportation services (e.g., carpools, vanpools, and public transit) targeting solo commuters in the corridor.

There already is a strong market for these types of services. As of March 2003, 98 of the 264 vanpools (37 percent) participating in SANDAG's Regional Vanpool Program originated from Riverside County. The Riverside Transit Agency (RTA) will be initiating commuter express bus service beginning in 2003, and there is private transit service connecting Riverside County residents with jobs in the San Diego region. MOBILITY 2030 proposes Managed/HOV lanes on I-15 north to SR 78 as well as the extension of the I-15 bus rapid transit system north to Temecula in Riverside County. Along with planned HOV lanes in Riverside, MOBILITY 2030 supports ridesharing and transit in the north I-15 corridor.

To accommodate the dynamic border transportation system, MOBILITY 2030 includes major projects to improve access to border crossings, expand freight rail service, and coordinate commercial vehicle crossings.

Binational Transportation

To accommodate the dynamic border transportation system, MOBILITY 2030 includes major projects to improve access to border crossings, expand freight rail service, and coordinate commercial vehicle crossings. Collectively, these projects will modernize and transform transportation infrastructure along the U.S./Mexico border from San Diego/Tijuana east to Arizona/Sonora. Long-term forecasts developed using the San Diego Region-Baja California cross-border travel demand model project that cross-border vehicle traffic will more than double between 1995 and 2020.

International Border Crossings. The San Diego region shares a common international border with the Municipalities of Tijuana and Tecate in the State of Baja California, Mexico. The population of the border area of San Diego and Tijuana-Tecate surpassed 4.5 million people in 2000. Three ports of entry serve the region – San Ysidro, Otay Mesa, and Tecate. Those who cross the border into the United States often face long and unpredictable waits. This situation has worsened since the terrorist attacks of September 11, 2001.

In 2001, President Bush and President Fox signed a 22-point agreement to build a smart border for the 21st century. This action plans aims at securing the international border while expediting the secure flow of people and goods. It includes measures that deal with providing a border infrastructure that keeps pace with commerce.

Created in 2002, the new Department of Homeland Security will consolidate the principal border and transportation security agencies – the Immigration and Naturalization Service, U.S. Customs Service, U.S. Coast Guard, Animal and Plant Health Inspection Service, and the Transportation Security Agency – to ensure both national security and the efficient flow of people, goods, and services across borders.

San Ysidro is the busiest land port of entry in the western hemisphere. It is the region's primary gate for auto and pedestrian traffic in both directions. About 42,000 passenger vehicles cross daily into San Diego at this port of entry. Of the 21,000 pedestrians who travel through this border crossing into San Diego daily, about 1,500 use their bicycles. A separate lane has been set aside for bicyclists to access the inspection facilities. Most people who cross northbound on foot or on their bicycles use the Trolley or buses to complete their journey.

Commercial truck traffic uses the Otay Mesa and Tecate ports of entry. The Otay Mesa port has 100 bays for handling truck inspections and serves autos and pedestrians as well. Truck, auto, and pedestrian traffic all use the same facility at Tecate. The Otay Mesa commercial crossing continues to rank third in terms of the dollar value of trade that passes through it along the U.S.-Mexico border (after Laredo-Nuevo Laredo and El Paso-Ciudad Juarez in Texas). In 2001, Otay Mesa handled nearly $20 billion dollars worth of freight, making this commercial crossing the busiest along the California-Baja California border. The Tecate port of entry handled more than $850 million in trade in 2001. The Caltrans Global Gateways Development Program (GGDP)[2] identified the California/Mexico border region as a major international trade region, and the Otay Mesa port of entry as one of the key border crossings.

In 2001, Otay Mesa handled nearly $20 billion dollars worth of freight, making this commercial crossing the busiest along the California-Baja California border.

The existing ports of entry infrastructure is already taxed, and growth in trade is expected to continue across the border in both directions over time. Short-term circulation improvements to alleviate existing congested conditions for southbound commercial vehicles at the Otay Mesa port of entry are in progress at this time. Intelligent Transportation System (ITS) technologies for efficient movement of trade through the Otay Mesa border crossing also are under evaluation as well as long-term strategies to improve northbound and southbound truck access to this port of entry.

Two miles east of Otay Mesa, a fourth border crossing is being planned at East Otay Mesa to improve traffic flows between the two countries and to provide an alternate entry for vehicles and commercial trucks. Scheduled to open in 2010, this new port of entry and State Route 11, a four-mile, four-lane state highway, will connect the U.S./Mexico border to key regional, state, and international highways and Imperial County to the east. In Mexico, the East Otay Mesa port of entry would connect with the Tijuana-Rosarito 2000 Corridor under construction and to the Tijuana-Tecate free and toll roads. In 2001, Caltrans submitted a draft application to the Department of State to initiate the federal review and approval processes for the East Otay Mesa border crossing.

A fourth border crossing is being planned at East Otay Mesa to improve traffic flows between the two countries and to provide an alternate entry for vehicles and commercial trucks.

The federal and state governments of the United States and Mexico, the City of San Diego, and the Municipality of Tijuana continue to study various possibilities for the reopening of the closed gate at Virginia Avenue-El Chaparral, located west of the San Ysidro border crossing. Realignment of I-5 and I-805 would be necessary to provide access to the inspection facilities.

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[2] Caltrans, *Global Gateways Development Program* (January 2002)

In 2000, SANDAG conducted a feasibility study[3] for another border crossing that would link Jacumba in San Diego County and Jacumé in the Municipality of Tecate, Mexico. This study recommended that California and Baja California government agencies continue planning and coordination efforts to identify and reserve right-of-way for inspection facilities and connecting roadways to allow for the development of a future port of entry. SAHOPE, Baja California's state planning agency, also has considered this location for a future port of entry in its long-range planning work to improve access for passenger vehicles and trucks that travel between Baja California and locations east of San Diego.

Included in MOBILITY 2030 are the plans to re-open the only rail link to the east via the San Diego and Arizona Eastern Railway.

Binational Intermodal Issues. Key intermodal components of the binational transportation system include rail, roadways, transit, and port facilities. Included in MOBILITY 2030 are plans to re-open the only rail link to the east via the San Diego and Arizona Eastern (SD&AE) Railway, which will improve the international and interstate movement of goods in, out, and through the Southern California/Baja California region. In addition to the SD&AE Railway, proposals to expand port facilities at the Ports of San Diego and Ensenada and a future rail line linking Ensenada and its port with Tecate are likely to affect cross-border freight transportation. However, reopening the SD&AE Railway and improvements at the Port of Ensenada are not expected to significantly reduce the amount of cross-border truck traffic on the region's highways and arterials. (Railroads typically transport bulk cargo distances greater than 500 miles, while trucks haul cargo to shorter distance markets.)

Implementation of the trucking provisions of the North American Free Trade Agreement (NAFTA), to allow trucks from the United States and Mexico to travel freely in each country, is still pending. In January 2003, a federal Appeals Court ordered the U.S. government to study the potential environmental effects of opening U.S. highways to Mexican trucks. Nevertheless, binational commercial vehicle traffic continues to use portions of the San Diego region's highway system. In 2002, more than 780,000 trucks crossed northbound at the San Diego region-Baja California border. About 57 percent of these truck trips have other California counties as their final destination, while 20 percent are destined outside of the state. The remaining trucks travel within the San Diego region.

Major highway projects addressing binational transportation needs include State Route 905, the future SR 125 state-of-the-art tollway, and the future SR 11 that will link to the proposed East Otay Mesa border crossing.

Major highway projects addressing binational transportation needs include State Route 905 to connect Interstates 5 and 805 to the Otay Mesa Port of Entry, the future SR 125 state-of-the-art tollway that will connect the Otay Mesa Port of Entry with the San Diego regional and interregional highway network, and the future SR 11 that will link to the proposed East Otay Mesa border crossing. Other MOBILITY 2030 investments along Interstates 5, 8, 15, and 805 will serve these key international trade corridors.

[3] SANDAG, *Feasibility of Opening an International Border Crossing at Jacumba-Jacumé* (2000)

Under construction in the community of San Ysidro east of I-5, the San Ysidro Intermodal Transportation Center will improve pedestrian safety and access to the various transit services, local businesses, and the international border. This project is scheduled to be completed in 2003. On the west side of I-5, a new intermodal center is planned. The Friendship Plaza project will house transit services, a walking path, and a bicycle lane for people crossing into Mexico as well as a "kiss and drop" area. Improvements to sidewalks on the Camino de la Plaza bridge over I-5 will enhance pedestrian access between both intermodal centers.

Airports. There are two public airports in the immediate border region. Tijuana International Airport on Mesa de Otay in Tijuana is a passenger and cargo airport with service to major cities in Mexico. It has a single runway of 9,800 feet with the options to extend it up to 15,000 feet and to build a second runway. Brown Field, owned and operated by the City of San Diego, is located in Otay Mesa just north of the border. It is primarily a general aviation field with one runway of 8,000 feet and a second runway of 3,000 feet.

The movement of goods in the San Diego region involves intermodal systems of rail, ports and maritime shipping, air cargo, and trucks. In an increasingly global economy, optimizing goods movement is vital to the San Diego region's economic competitiveness.

GOODS MOVEMENT AND INTERMODAL FACILITIES

The movement of goods in the San Diego region involves intermodal systems of rail, ports and maritime shipping, air cargo, and trucks. In an increasingly global economy, optimizing goods movement is vital to the San Diego region's economic competitiveness. Figure 6.11 shows the location of intermodal facilities in the region.

Caltrans recently developed the Global Gateways Development Program (GGDP) as a strategy to improve the capacity and efficiency of California's goods movement system. The GGDP focused on high-priority seaports, airports, international border crossings, trade corridors, major railroads, and highways. It identified access and intrastate transportation system improvements for potential federal, state, and other funding.

Rail

The Burlington Northern Santa Fe (BNSF) and the San Diego and Imperial Valley (SDIV) railroads transport rail freight in the San Diego region. BNSF maintains a freight easement over the 62 miles of coastal mainline and the 20-mile branch line between Escondido and Oceanside. The BNSF also interchanges freight with the SDIV and with the U.S. Navy. The Port of San Diego is the main generator of freight for BNSF in the I-5 corridor south of the greater Los Angeles area. Rail-borne commodities handled at the port consist of soda ash and lumber for export, and import automobiles.

The SDIV Railroad is a Class II Carrier or "short-haul" railroad. It has been the freight operator on the SD&AE Railway since 1984. In 2001, Carrizo Gorge Railway took over operations between Tijuana and Tecate, Baja California. Main commodities moved include liquefied petroleum gas, lumber, beverages, paper, grain, and sand.

Existing freight service between San Diego and Tecate can be extended to the Imperial Valley by rehabilitating the 70-mile Desert Line portion of the SD&A.

Existing freight service between San Diego and Tecate can be extended to the Imperial Valley by rehabilitating the 70-mile Desert Line portion of the SD&AE, which has been out of service since 1983. In May 2002, MTDB granted a contract to Carrizo Gorge Railway to repair, operate, and maintain the Desert Line. The connection with the Union Pacific Railroad in Imperial Valley would link San Diego and its port to the rest of the United States and Mexico and vastly improve the region's market opportunities.

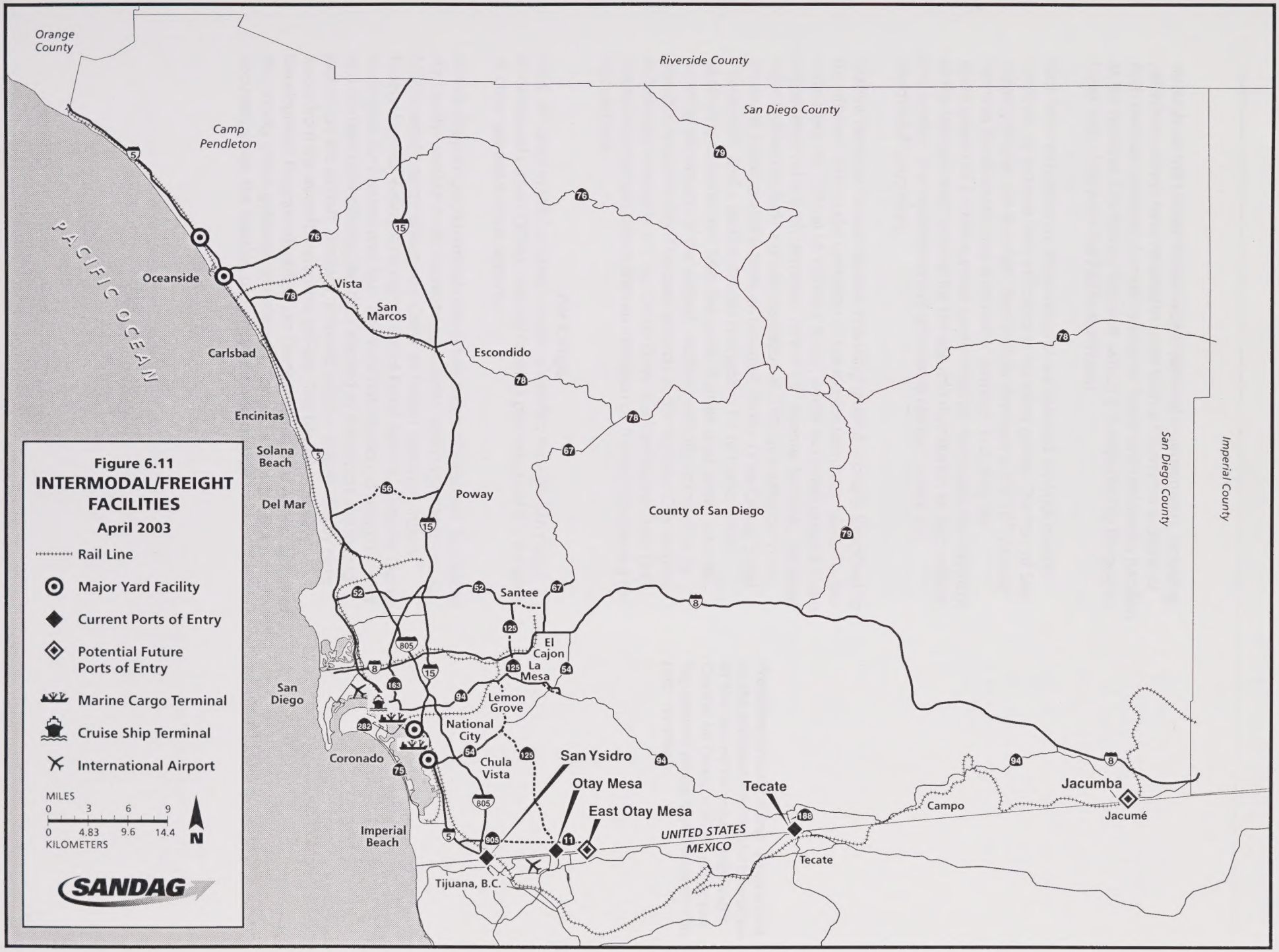
Re-opening the SD&AE Railway for basic service is estimated to cost $43 million. This will rehabilitate the Desert Line to handle single-stack intermodal traffic and "conventional" rail carload traffic such as bulk commodities. Planned basic service improvements include an intermodal transfer facility to gather and distribute potential diversions of truck traffic passing through the SD&AE's service territory in the region. To accommodate modern service (at an additional cost of $62.4 million), the rail line would need to be improved to handle modern rail cars, including double-stack platforms and triple-deck automobile carriers, and would need to build supporting facilities including storage yards. The federal Transportation Equity Act for the 21st Century (TEA-21) set aside $10 million toward SD&AE improvements. The strategy in MOBILITY 2030 is to identify other public and private funds and partnerships to reopen the Desert Line for revenue service, and to provide service coordination with other intermodal facilities in the region to optimize goods movement.

Maritime Shipping

The Port of San Diego oversees and plans for the development of commerce, navigation, fisheries, and recreation within San Diego Bay and the surrounding tidelands. Maritime commerce is carried out at two marine terminals located on the San Diego Bay – the 10th Avenue Marine Terminal in San Diego and the National City Marine Terminal at 24th Street.

Together, the two marine terminals handle approximately 2.5 million tons of cargo annually.[4] Built in the 1950s, the 10th Avenue Marine Terminal is San Diego's general cargo terminal. It supports cool/frozen storage, break bulk, dry/liquid bulk, and small container operations. National City is the primary port of entry for Honda, Acura, Volkswagen, Isuzu, Mitsubishi Fuso, and Hino Motors vehicles. In 2002, approximately 330,000 motor vehicles were handled for distribution by rail and truck

[4] Port of San Diego, *Maritime Master Plan* (1999) and *2002-2006 Compass Strategic Plan* (2002)


Orange County
Riverside County
San Diego County
Imperial County
Camp Pendleton
PACIFIC OCEAN
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
National City
Chula Vista
San Diego
Coronado
Imperial Beach
San Ysidro
Otay Mesa
East Otay Mesa
Tecate
Campo
Jacumba
Jacumé
UNITED STATES
MEXICO
Tijuana, B.C.
Tecate
Figure 6.11
INTERMODAL/FREIGHT FACILITIES
April 2003
Rail Line
Major Yard Facility
Current Ports of Entry
Potential Future Ports of Entry
Marine Cargo Terminal
Cruise Ship Terminal
International Airport
MILES
0 3 6 9
0 4.83 9.6 14.4
KILOMETERS
N
SANDAG

throughout the United States. Recent terminal improvements, including rail infrastructure, have resulted in more than a 50 percent increase of Port maritime revenues. Lumber is another important commodity handled at the National City Marine Terminal, which is transported by barge and break bulk ships from the Pacific Northwest.

Near-term infrastructure improvements are planned for both marine terminals to increase their efficiency in handling goods. The Port of San Diego's master and strategic plans include developing the 10th Avenue terminal incrementally into a container terminal, including the development of a multi-purpose cargo terminal, continued development of the National City terminal for storage and distribution of automobiles and lumber, and development of alternative railroad service for intermodal cargo users.

Marine Terminal Ground Access. Providing ground access is important to the efficient intermodal operation of the marine terminals. SANDAG has completed the Central I-5 Corridor Study, which evaluated ground access improvements for both terminals. At the 10th Avenue terminal, potential improvements include a grade separation at 28th Street/Harbor Drive, improved terminal access from an elevated Harbor Drive/Crosby Street intersection, and a viaduct directly connecting I-5 to Harbor Drive, facilitating access to and from the north. Further analysis will address potential alignments of the viaduct, working with the community to minimize local impacts. Proposed projects at the National City terminal include improvements at Civic Center Drive and Bay Marina Drive (24th Street) interchanges, along with an extension of Tidelands Boulevard to Harbor Drive.

Providing ground access is important to the efficient intermodal operation of the marine terminals. SANDAG's Central I-5 Corridor Study proposed key ground access improvements for both terminals.

Air Cargo

Most air cargo in the San Diego region is handled through San Diego International Airport (SDIA), although a small percentage of it is handled at other general aviation airports.

SDIA's three air cargo terminals house two freight forwarders, Burlington Air Express and LEP Profit International Airlines, and United Airlines and Southwest Air cargo operations. Other air freight operators include Federal Express, Emery Air Freight, United Parcel Service, Airborne Express, Burlington Air Express, and Ryan International. Outbound cargo is sorted and containerized off-site, and then trucked to the airport and loaded directly on the aircraft. Similarly, inbound cargo is loaded directly onto trucks from the aircraft and sorted off-site. The Global Gateways Development Program identified San Diego International Airport as one of the priority global gateways in California. Ground access to SDIA is discussed under the Aviation section later in the chapter.

Commercial Trucking

In the San Diego region, Interstates 5 and 15 are the two major north-south corridors that accommodate significant volumes of commercial trucks, while State Routes 94/125, I-8, and SR 905/Otay Mesa Road are the region's primary east-west truck corridors. These north-south and east-west corridors serve both domestic cargo as well as international trade routes.

Truck-only lanes, which are designated for the exclusive use of trucks, are not proposed in MOBILITY 2030. In 2001, the Southern California Association of Governments (SCAG) conducted a feasibility study[5] on exclusive lanes for commercial trucks. This study included an extensive literature review that showed that truck-only lanes were most feasible for congested highways if the following three factors exist: (1) truck volumes exceed 30 percent of the vehicle mix; (2) peak hour volumes exceed 1,800 vehicles per lane-hour; and (3) off-peak volumes exceed 1,200 vehicles per lane-hour.

Vehicle occupancy and classification counts are conducted every five years by SANDAG. While many of the highways in the region meet or exceed the study's thresholds for peak and/or off-peak volumes, none of highways in the San Diego region shows truck volumes of 30 percent or more. According to the most recent counts in 2000, the percentage of business vehicles[6] on the highways during the peak period ranges from seven percent (I-5 near Old Town and I-8 near Texas Street) to 14 percent (I-15 near SR 76). Truck volumes on one of the heaviest traveled truck corridors in the region – Otay Mesa Road serving the Port of Entry and the nearby industrial areas – average approximately 15 percent of the overall traffic.

While the Plan does not include truck-only lanes, several of the improvements in MOBILITY 2030 will benefit the major commercial vehicle corridors. These include major capital improvements for Interstates 5, 8, 15, and 805 and State Routes 11, 94, 125, and 905.

While the Plan does not include truck-only lanes, several of the improvements in MOBILITY 2030 will benefit the major commercial vehicle corridors. MOBILITY 2030 includes major capital improvements for Interstates 5, 8, 15, and 805 and State Routes 11, 94, 125, and 905 (see earlier Table 6.2). These include widening projects to accommodate Managed/HOV and general purpose lanes to improve mobility, accessibility, and contribute to more reliable travel times for commercial trucks in addition to the region's commuters. MOBILITY 2030 proposes to evaluate the use of Managed/HOV facilities for goods movement during off-peak periods. All the above highways were identified in the GGDP as priority global gateways in California.

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5 SCAG, *SR 60 Truck Lane Feasibility Study* (2001)

6 Business vehicles include heavy duty trucks, buses, light duty business trucks, business passenger cars, and taxis.

AVIATION

The existing airport system in the San Diego region is composed of 16 airports, including one major commercial facility (San Diego International Airport), four military airports, and eleven general aviation airports. Table 6.3 lists the commercial and general aviation airports in the region.

Airport Planning. The Air Transportation Action Program is currently evaluating long-term solutions to meet projected 2030 commercial air passenger and air cargo demand in the San Diego region. Another important program objective is to maximize for the region the potential economic benefit of meeting the air service demand. The action program is being conducted by the San Diego County Regional Airport Authority (SDCRAA), the regional government entity with jurisdiction over airport planning.

The Air Transportation Action Program is evaluating long-term solutions to meet projected 2030 commercial air passenger and air cargo demand in the San Diego region. Pending completion of the action program, MOBILITY 2030 assumes that the San Diego International Airport will continue to serve as the region's primary commercial airport.

The Airport Economic Analysis, conducted in 2001, quantified the role that San Diego International Airport (SDIA) plays in the regional economy. The report estimated that the region's economy could miss out on $29.6 billion to $93.8 billion of Gross Regional Product by 2030 if airport facilities fall short of meeting the regional demand for air passenger and air cargo services.

Unconstrained passenger demand is estimated at 28.6 million annually by 2020 and 35.5 million in 2030. Unconstrained cargo demand is 355,241 tons by 2020, growing to 541,300 tons by 2030. As expected, passenger volumes dropped in 2001 and 2002 versus previous years due to September 11. Passenger volumes decreased between three percent and four percent, well below the national averages, and passenger volumes are anticipated to rise again. Over the same time frame, freight volumes continued to increase and did not decline like passenger volumes.

The projected figures for air passenger and air cargo demand cannot be accommodated at SDIA, even with the additional runway included in the maximum expansion scenario considered in the Airport Master Plan. While the Air Transportation Action Program looks at long-range solutions, the Airport Authority is using the first steps of the Airport Master Plan to implement short-term improvements to SDIA. Pending completion of the action program, MOBILITY 2030 assumes that SDIA will continue to serve as the region's primary commercial airport.

The projected figures for air passenger and air cargo demand cannot be accommodated at San Diego International Airport, even with the additional runway included in the maximum expansion scenario considered in the Airport Master Plan.

SDIA Ground Access. Providing ground access is critical to the successful operation of the airport. The primary access to the terminals on the south side of SDIA is via North Harbor Drive. The Airport Master Plan proposes additional terminal facilities, either a new north terminal with access from Pacific Highway, or expansion on the west side of the existing south terminals. These improvements are expected by 2010 to facilitate ground access to the airport.

Longer term ground access improvements to SDIA were evaluated in the Central I-5 Corridor Study. Recommended improvements include direct freeway ramps from I-5 to Pacific Highway, exclusive bus/HOV lanes between the Old Town Transit Center and the airport, and intersection upgrades on Laurel Street. MOBILITY 2030 currently assumes adding HOV lanes to I-5 in the vicinity of the airport. Any future recommendations from the Airport Authority regarding alternative airport sites will be incorporated in the future into MOBILITY 2030, as appropriate.

TABLE 6.3—COMMERCIAL AND GENERAL AVIATION AIRPORTS IN THE SAN DIEGO REGION

AIRPORT	TYPE	OWNER	MASTER PLAN DATE	CAPACITY EXPANSION
Agua Caliente Springs Airport	General Aviation	County of San Diego	None	None planned
Borrego Valley Airport	General Aviation	County of San Diego	1995	None planned
Brown Field	General Aviation	City of San Diego	1990	On hold
Fallbrook Community Airpark	General Aviation	County of San Diego	None	None planned
Gillespie Field Airport	General Aviation	County of San Diego	2003 (expected completion)	None planned
Jacumba Airport	General Aviation	County of San Diego	None	None planned
McClellan-Palomar Airport	Commercial and General Aviation	County of San Diego	1997	None planned
Montgomery Airport	General Aviation	City of San Diego	2003 (expected completion)	None planned
Oceanside Municipal Airport	General Aviation	City of Oceanside	1996	None planned
Ocotillo Airport	General Aviation	County of San Diego	None	None planned
Ramona Airport	General Aviation	County of San Diego	None	Extend runway to accommodate firefighting aircraft
San Diego International Airport	Commercial and General Aviation	San Diego County Regional Airport Authority	2003 (expected completion)	Various

REGIONAL BIKEWAYS

Most neighborhood bicycle trips can be accommodated on local streets where traffic volumes are lower and vehicle speeds are slower. However, converting a higher share of both community and intercommunity trips to bicycling will require improvements to the region's bikeway network.

While all roadways are open to bicycle travel unless it is specifically prohibited, the California Highway Design Manual establishes three classifications of facilities specifically for bicycle traffic as shown in Table 6.4. The Plan envisions an intercommunity bikeway network that is a combination of these facility types.

Bicycle Facility Types. Table 6.5 and Figure 6.12 show the planned regional bikeway corridors network. The purpose of the network is to connect all the major communities in the region with convenient and attractive bikeways. The network was designed to ensure that all high demand corridors are covered, and that there is good bike access to the transit system of the future. Where adequate bikeways currently exist, or where projects currently are being developed, Figure 6.12 depicts the bikeway's alignment. In some cases however, only the need for bikeway improvements has been identified. In that case, only a general corridor is depicted. Where local jurisdictions have adopted bicycle transportation plans, the bikeways in the network were based on those plans. Where no plan exists, the corridors were selected in consultation with local agency staff.

TABLE 6.4—BICYCLE FACILITY TYPES

FACILITY	DESCRIPTION
Bike Path (Multi-Use Trail), Class I	An eight- to twelve-foot paved path within its own right of way to provide a nonmotorized connection or access where it cannot be provided on the roadway.
Bike Lanes, Class II	Five-foot lanes striped on the outside of the roadway and identified with signs and pavement markings.
Bike Route, Class III	Roads designated by signs as preferred routes for bicycle travel.

TABLE 6.5—REGIONAL BIKEWAY CORRIDORS

BIKEWAY	AREAS SERVED
Coastal Rail Trail	Oceanside, Carlsbad, Encinitas, Solana Beach, Del Mar, and San Diego
Camp Pendleton Trail	Oceanside to San Clemente
I-15 Bikeway	Riverside County to Mid City San Diego
San Luis Rey River Trail	North Oceanside from the Beach to SR 76
Inland Rail Trail	Escondido, San Marcos, Vista, Oceanside, and adjacent unincorporated areas
Palomar Airport Road/ San Marcos Blvd.	Carlsbad to San Marcos
La Costa Ave./ Rancho Santa Fe Road	Encinitas to San Marcos
Escondido Creek Bikeway	Escondido
Mid-County Bikeway	Del Mar, San Diego, Rancho Santa Fe, and Escondido
SR 56 Bikeway	San Diego and Poway
Scripps Poway Parkway	Scripps Ranch, Poway
Central Coast Corridor	Torrey Pines, La Jolla, Pacific Beach, Mission Beach, Mission Bay, Point Loma, and Downtown Sa Diego
SR 52 Bikeway	Clairemont, Kearny Mesa, Santee
San Diego River Bikeway	Ocean Beach, Mission Valley, Mission Trails Regional Park, Santee
East County - Centre City Corridor	La Mesa, Mid City, North Park, Downtown San Diego
SR 94 Corridor Bikeway	Lemon Grove, Mid City, Downtown San Diego
SR 125 Corridor	Santee, La Mesa, Lemon Grove, Bonita, Chula Vista, Otay Mesa
Sweetwater River Bikeway	Chula Vista, National City, Bonita
SR 54 Bikeway	Lakeside, El Cajon, Rancho San Diego, Spring Valley
I-8 Corridor	Lakeside to Imperial County
Bayshore Bikeway	San Diego, Coronado, National City, Chula Vista, and Imperial Beach
Chula Vista Greenbelt	Otay River, Chula Vista, Otay Lakes
SR 905 Corridor	Otay Mesa, International Border

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
El Cajon
La Mesa
San Diego
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 6.12
REGIONAL BIKEWAY CORRIDORS
April 2003
Regional Bikeway
Regional Arterials
Future Regional Arterials
Highways
Future Highways
MILES
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KILOMETERS
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ACTIONS

The following actions support the Plan's Systems Development Chapter recommendations.

SYSTEMS DEVELOPMENT

	Proposed Actions	Responsible Parties
	Regionally Significant Systems – The following proposed actions support the RTP goals of Mobility and Accessibility.	
1.	Maintain evaluation criteria for prioritizing highway, regional transit, and arterial projects and update these criteria to better reflect the goals of the RTP, as needed.	SANDAG
2.	Allocate regional funds to transportation projects, programs, and services based on established criteria, which provide priority to implementing smart growth, the Regionally Significant Transportation Network, the Congestion Management Program, and performance monitoring efforts.	SANDAG
	Regional Transit Vision – The following proposed actions support the RTP goals of Mobility, Accessibility, Reliability, Livability, Sustainability, and Equity.	
3.	Implement appropriate transit priority measures on local streets and regional arterials such as signal priority or queue jumper lanes for transit vehicles.	Local jurisdictions, MTDB, & NCTD
4.	Fund regional program to develop early action transit projects, pursue additional revenue sources to match regional program, and develop a prioritized list of projects for consideration in future funding cycles.	SANDAG, MTDB, & NCTD
5.	Fund regional rail grade separation program, pursue additional revenue sources to match regional program, and develop a ranking system to identify regional priorities.	SANDAG, MTDB, NCTD, & Caltrans
6.	Determine the transit alignment, identify station locations, and select the appropriate technology, as required, for the regional transit services as prioritized in the RTP.	SANDAG, MTDB, NCTD, & Caltrans
7.	Secure future rights-of-way and pursue implementation of improved transit services, including showcase and early action projects, as opportunities occur.	SANDAG, MTDB, NCTD, & Caltrans
8.	Refine design guidelines for transit stations to incorporate customer features, bicycle and pedestrian access, and other design considerations.	SANDAG, MTDB, & NCTD
9.	Consistent with the priorities identified in the RTP, expand fixed-route services into developing areas when sufficient density and funding exist to make service cost-effective, enhance transit service to existing developed areas, and provide feeder services to new rail stations.	SANDAG, MTDB, & NCTD

SYSTEMS DEVELOPMENT		
Proposed Actions		**Responsible Parties**
10.	Annually update short-range transit plans (SRTPs), and implement service productivity, reliability, and efficiency improvements contained in the SRTPs.	SANDAG, MTDB, & NCTD
11.	Implement the service productivity and other recommendations from the performance audit process of the Transportation Development Act.	SANDAG, MTDB, NCTD, & other transit operators
12.	Conduct study of existing public/private funding partnerships for transit services nationwide. Identify applicable partnerships for the San Diego region.	SANDAG, MTDB, & NCTD
13.	Evaluate parking demand and needs at major transit stations in the region.	SANDAG, MTDB, & NCTD
14.	Identify private and public funding sources and market the potential for smart growth/joint development of transit parking structures and other improvements.	SANDAG, MTDB, & NCTD
	Commuter, Intercity, and High Speed Rail	
15.	Complete the technical studies along the Los Angeles to San Diego portion of the LOSSAN corridor and incorporate into a programmatic environmental impact report for this portion of the corridor.	California High-Speed Rail Authority, Caltrans, SANDAG, NCTD, MTDB, & Amtrak
16.	Proceed with project-level environmental studies, design and implementation of double tracking, and other rail improvement projects in the coastal rail corridor.	SANDAG, MTDB, & NCTD
17.	Support efforts to secure federal and state funding to improve and expand the LOSSAN intercity passenger rail services.	California High-Speed Rail Authority, Caltrans, SANDAG, NCTD, MTDB, Amtrak, & southern California rail agencies
18.	Coordinate with efforts of the California High-Speed Rail Authority for high-speed passenger rail service on the coastal rail and inland I-15 corridors.	SANDAG, Caltrans, MTDB, & NCTD
19.	Continue to coordinate coastal rail efforts with the LOSSAN member agencies and explore new initiatives, such as the Metrolink-Amtrak-Caltrans Rail-2-Rail program.	SANDAG, MTDB, NCTD, Caltrans, & Amtrak
	Accessible Transit	
20.	Improve accessibility of transit stops and walkways to stops for persons with disabilities and identify potential funding programs for these improvements.	SANDAG, MTDB, NCTD, & local jurisdictions

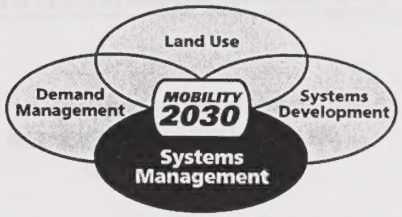
SYSTEMS DEVELOPMENT		
Proposed Actions		**Responsible Parties**
21.	Improve connections and transfers between paratransit and fixed-route transit operations.	SANDAG, MTDB, NCTD, paratransit operators, & Coordinated Transportation Service Agency
22.	Facilitate efforts to promote coordination among fixed-route and paratransit operators and non-profit agencies in the region.	SANDAG, MTDB, NCTD, paratransit operators, & Coordinated Transportation Service Agency
23.	Continue educational efforts on use of transit and accessibility equipment among persons with disabilities.	SANDAG, MTDB, & NCTD
24.	Continue to use SANDAG's Subcommittee on Accessible Transportation (SCAT) to recognize the changing transit needs of seniors and persons with disabilities, including those too frail to access traditional fixed route and ADA paratransit services. Assist with solutions development.	SANDAG, MTDB, NCTD, paratransit operators, & Coordinated Transportation Service Agency
25.	Utilize recommendations made by AMMA in the June 15, 2000 Senior Transportation Study commissioned by SANDAG to implement projects addressing the needs of the aforementioned transportation disadvantaged populations.	SANDAG, MTDB, NCTD, paratransit operators, & Coordinated Transportation Service Agency
Highways and Arterials – The following proposed actions support the RTP goals of Mobility, Reliability, Efficiency, and Sustainability.		
26.	Evaluate arterial system capacity, operations, and funding needs, and prioritize the arterial component of the Regionally Significant Transportation Network for consideration in future funding cycles.	SANDAG & local jurisdictions
27.	Incorporate planned highway network identified in the RTP into local general plans, community plans, and specific project development plans, and reserve appropriate right-of-way through the subdivision review process and other means.	Local jurisdictions
28.	Develop Project Study Reports (PSRs) in accordance with the priorities identified in the RTP.	Caltrans
29.	Provide operational and other improvements, such as auxiliary and passing lanes where appropriate, to improve safety and to maximize the efficiency of highways and arterials. Fund regional program to relieve highway "pinch points," pursue additional state and federal funding to match regional program, and develop a prioritized list of potential projects for consideration in future funding cycles.	SANDAG, Caltrans, & local jurisdictions

SYSTEMS DEVELOPMENT

Proposed Actions		Responsible Parties
30.	Implement signal timing programs along the designated Regional Arterial System, and improve traffic signal operations by interconnecting signalized intersections under centralized control, and by coordinating with ramp signal systems at freeway interchanges.	SANDAG & local jurisdictions
31.	Develop guidelines to ensure that all regionally-funded transportation projects preserve or enhance existing non-motorized access, and provide for appropriate access where such facilities are planned.	SANDAG, Caltrans, & local jurisdictions
Borders, Goods Movement, and Intermodal Facilities – The following proposed actions support the RTP goals of Mobility, Accessibility, Efficiency, and Reliability.		
32.	Complete I-15 Interregional Partnership Program (IRP), and incorporate IRP recommendations, as appropriate, into development of future RTPs.	SANDAG, Western Riverside Council of Governments, Caltrans, & other local agencies
33.	Evaluate the development of other interregional partnerships with other neighboring counties and Mexico to address land use and transportation needs.	SANDAG & other agencies
34.	Secure funding for needed transportation infrastructure in the region's border areas and coordinate the implementation of border-related capital and operating improvements with the federal General Services Administration (GSA).	Caltrans, SANDAG, City of San Diego, County of San Diego, and GSA, & Mexico
35.	Identify public and private funds and partnerships to reopen the Desert Line of the SD&AE Railway for revenue service.	SANDAG & MTDB
36.	Encourage off-peak use of rail capacity for rail freight movement, and evaluate using Managed/HOV facilities for goods movement during off-peak periods.	NCTD & MTDB (owners of rail rights-of-way within the region), Caltrans, & SANDAG
37.	Review the potential for consolidating intermodal rail, truck, and air cargo freight terminals at specific staging areas.	Caltrans, SANDAG, Port of San Diego, MTDB, and shippers
Aviation – The following proposed actions support the RTP goals of Mobility and Efficiency.		
38.	Complete the technical studies for the Air Transportation Action Program, and in 2004 or 2006, place an advisory proposition on the countywide ballot regarding a proposed regional airport solution(s).	San Diego County Regional Airport Authority (SDCRAA)

SYSTEMS DEVELOPMENT	
Proposed Actions	**Responsible Parties**
39. Adopt and implement the Airport Master Plan for San Diego International Airport (SDIA) in order to meet capacity needs over the next 20 years.	SDCRAA

CHAPTER 7
SYSTEMS MANAGEMENT: MAKING BETTER USE OF WHAT WE HAVE



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CONGESTION MANAGEMENT PROGRAM 136
ADVANCED TECHNOLOGIES 143
FREEWAY SERVICE PATROL 148
HOT LANES 149
ACTIONS 150

Our existing transportation system represents a major investment of resources over the past several decades. While MOBILITY 2030 identifies additional investments needed to meet future transportation needs, it is critical that the region make the best use of the facilities already in place. At the same time, lower cost investments in existing transportation facilities, which can be implemented in the near-term, will help reduce the need for higher cost investments in the future.

It is critical that the region make the best use of the existing facilities until the benefits of future system improvements are realized.

Equally important to maximizing transportation system performance is making real-time travel information available to assist people in making informed travel choices. Studies have shown that transportation system users are willing to accept a certain level of congestion, especially during peak periods and will take these delays into consideration when making their travel plans. What they do not like are delays that are unpredictable or significantly greater than those they normally encounter. With the advent of modern technology it is possible to control and reduce the impacts of roadway incidents or special events and advise travelers of alternative routings.

Key to getting the most out of our investment is to monitor its performance (Performance Monitoring); "fine tune" the facilities to better manage congestion through low-cost, near-term strategies (Congestion Management Program, Freeway Service Patrol); and incorporate the latest technological advances in transportation (Advanced Technologies and HOT Lanes). These strategies are described in this Systems Management Chapter.

PERFORMANCE MONITORING

The purpose of performance monitoring is to (1) provide current and ongoing information on how well the transportation system is performing; (2) identify opportunities for near-term improvements; and (3) assess the impacts of future improvements. In the past, SANDAG and other transportation operators have conducted performance monitoring, though not always on a consistent or ongoing basis. Consistency and frequency of data collection are key to tracking how well the transportation system is performing. The following section outlines the status of current or near-term regional transportation system performance monitoring efforts.

STEPS TO IMPROVE TRANSPORTATION SYSTEM PERFORMANCE

- Determine the information best suited for performance monitoring
- Collect consistent data on a regular basis, and automate data collection as much as possible
- Report the results of monitoring efforts to decision-makers and the general public
- Adjust decisions based on monitoring results

➢ **Roadway System** - For the region's roadway network, SANDAG currently coordinates the annual collection of average daily traffic volumes from Caltrans and local jurisdictions, and through the Congestion Management Program, collects roadway level of service data every two years. Collection of this data is not yet fully automated and is dependent to a large extent on the available resources of reporting agencies.

For most freeways, traffic volumes and speed data are automatically collected by Caltrans through loop detectors embedded underneath the pavement. Approximately 70 percent of the urban freeway system is automatically monitored through use of these detectors, and Caltrans has an ongoing program to install additional detectors. Manual data collection is done on other freeway segments and some conventional highways.

For local streets and roads, traffic volume counts also are done manually and are not always performed on an annual basis. Speed data on local streets and roads are not normally collected, but counts are performed on an as-needed basis. SANDAG is proposing to install permanent detectors on the Congestion Management Program arterial and conventional highways network so data can be continuously and automatically collected, similar to the urban freeway system.

In cooperation with UC Berkeley, Caltrans has developed a Performance Measurement System (PeMS) program that uses the urban freeway data collected through freeway loop detectors. This program provides current, ongoing data on freeway volumes and speeds and can be displayed graphically and exported to other monitoring applications.

➢ **Transit System** – Through SANDAG's annual passenger counting program, transit ridership information is reported to the two transit districts - the Metropolitan Transit Development Board and the San Diego North County Transit District. This information is supplemented by each transit district's own payment-based counts and other transit operational data (e.g., bus speed, mileage, hours of service). Each district develops their short-range transit plans using these data. The ridership data are currently collected manually, although there are plans to implement an automated passenger counting and a vehicle location system. In addition, SANDAG regularly conducts both on-board passenger and residential opinion surveys to better gauge ridership trends and satisfaction with transit service.

- **Roadway & Transit Travel Times** – In 2002, SANDAG began implementing a monitoring program to track and compare auto and transit trip travel times within representative travel corridors in the region. Participants in the program are asked to monitor their door-to-door travel times including transfers and wait times (if via transit) and ramp metering delays (if via auto). The program is evaluating both manual and automated data collection techniques.

Since the adoption of the 2020 RTP, SANDAG has re-examined these monitoring efforts. Issues considered include: *What types of data are best suited to assess the performance of our multimodal transportation system? How can we build upon existing data collection efforts? What is the best way to collect these data and how often? Who should be responsible for the data collection and monitoring, and how will we pay for it? How will this information be used?*

Performance monitoring needs to reflect the multimodal nature of our transportation system by focusing on all modes of travel. Data collection needs to be automated, consistent, and reported to decision-makers and the general public to assist them in making informed decisions.

Based upon this analysis, the following needed improvements in performance monitoring were identified:

1. Performance monitoring needs to reflect the multimodal nature of our transportation system by focusing on all modes of travel.
2. The existing automated freeway data collection and reporting activity available needs to be expanded beyond freeways to include freeway on-ramps, conventional highways, principal arterials, and transit.
3. Data collection in support of performance monitoring needs to be:
   - **Automated** - This will reduce costs and provide more frequent data collection.
   - **Uniform** - If system performance is to be monitored over time, then data collection efforts must be consistent year to year.
   - **Reported** - Performance monitoring information needs to be regularly reported to decision-makers to assist in project selection and programming decisions, and to the general public to assist them in making travel route and mode choices.
4. The most useful indicators of how well our transportation system is performing should include:
   - **Travel Time** - The average time it takes to complete a trip
   - **Travel Speed** - The average speed of a trip
   - **Usage** - Changes in traffic, transit ridership, or bicycle facility usage

   These basic data can be combined to generate other indicators; for example, speed and traffic volume are used to determine roadway level of service (LOS), an indicator of congestion levels.

5. Augmenting these automated data collection efforts should be periodic surveys to assess customer satisfaction and to identify other needed improvements from a user perspective.

These identified improvements provide the basis for the recommended actions at the end of this chapter.

CONGESTION MANAGEMENT PROGRAM

WHAT ARE OUR OPTIONS TO BETTER MANAGE CONGESTION?

- Identify current and potential congestion "hot spots"
- Address congestion on a corridor level
- Use a wide variety of non-traditional and low-cost solutions to better manage congestion

State Proposition 111, passed by voters in 1990, established a requirement that urbanized areas prepare and regularly update a Congestion Management Program (CMP). The purpose of the CMP is to (1) monitor the performance of our transportation system; (2) develop programs to address near-term and long-term congestion; and (3) better integrate transportation and land use planning.

The CMP requirement was born of the realization that large capital projects alone cannot solve our congestion problems and that local land use decisions contribute to roadway congestion. SANDAG, as the designated Congestion Management Agency (CMA) for the San Diego region, adopts and regularly updates the CMP. This section summarizes the main features of SANDAG's 2002 CMP.

In addition to meeting the legislative requirements, the CMP provides a number of benefits both to the region as a whole and to local jurisdictions. These benefits include:

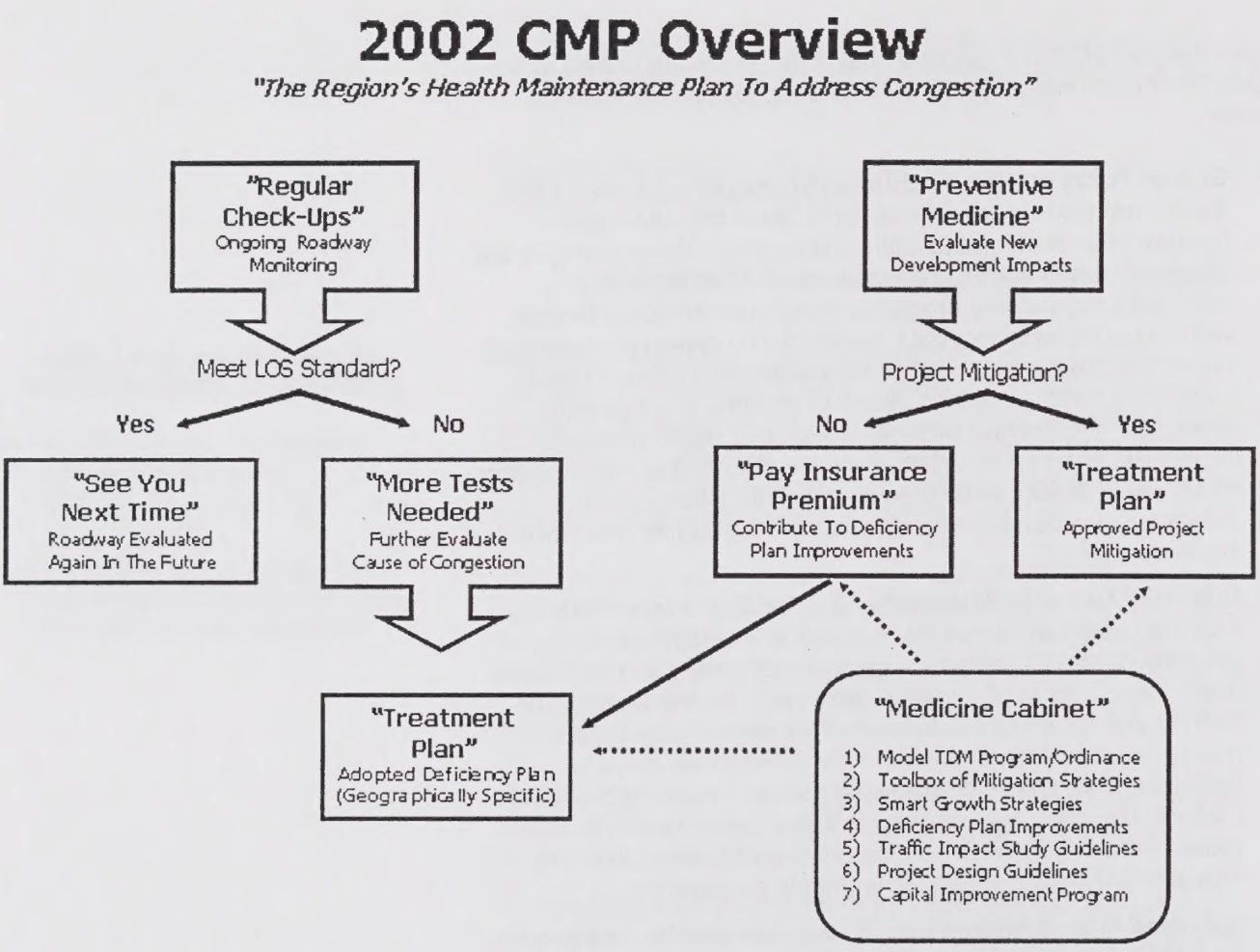
- **Ongoing System Monitoring** – The CMP provides regular, consistent monitoring of the region's roadway and transit system performance that is used to identify congestion "hot spots" and to prepare deficiency plans. Deficiency plans are used by SANDAG, the transit districts, Caltrans, and local jurisdictions to further investigate the causes of congestion and to identify remedial actions as well as establishing funding mechanisms for capital projects.
- **Wide Range of Non-Traditional Strategies** – In additional to the traditional capital projects (road widenings or extensions), the CMP offers a wide range of alternative strategies to better manage congestion. Congestion is caused by a variety of factors and accordingly, potential solutions need to be varied and flexible in order to respond to local conditions and funding opportunities.
- **Focus On Near-Term Solutions** – The CMP focuses on near-term, low cost strategies that can be implemented earlier than the more capital intensive, long-range RTP recommendations. These strategies can be used by local agencies to address the impacts at the onset of new development projects, minimizing larger project impacts in the future.

Since the prior 2020 RTP, SANDAG has adopted a major update of the CMP. The major changes in the 2002 CMP update are summarized below:

- **Greater Focus on Non-Traditional Strategies** – The new CMP focuses more on the use of near-term, lower cost alternative transportation strategies to address congestion. These strategies are grouped into the following areas: transportation demand management (rideshare programs, transit pass subsidies, flexible work hours, teleworking, etc.), transportation system management (signal synchronization, peak period parking restrictions, bicycle paths, etc.), land use (mixed use developments, smart growth strategies), and design guidelines (pedestrian, transit oriented, bicycle, etc.). These strategies, which are described in other chapters of MOBILITY 2030, can be used in preparing deficiency plans, mitigating new development impacts, and supporting other local planning activities.
- **Increased Use of Deficiency Plans** – The CMP recommends increased use of deficiency plans to further investigate and recommend specific mitigation measures for congestion "hot spots" identified as a result of ongoing roadway system monitoring. The CMP further recommends that deficiency plans be used as one means to mitigate the impacts of new development projects. Deficiency plans will be developed in partnership among SANDAG, Caltrans, the two transit districts, and local jurisdictions. The CMP provides improved guidelines for preparing deficiency plans and increased SANDAG involvement with their development.
- **Improved Project Mitigation** – For all major development projects, the CMP encourages the use of appropriate strategies contained within the CMP, as determined by local agencies, to mitigate significant impacts on the CMP system. Through the early mitigation of new development impacts, it may be possible to reduce future congestion on the CMP network. The CMP can assist agencies with this responsibility by offering a range of mitigation strategies that can be applied to unique development project impacts and varying local conditions.
- **Increased CMP Compliance Monitoring** – The CMP recommends that SANDAG take a more proactive stance in working with local jurisdictions and transportation operators to monitor implementation of the CMP and to fine tune the CMP in response to evolving local needs.

The general approach recommended in the 2002 CMP update is summarized in Figure 7.1. Figure 7.2 depicts the CMP system, and Figure 7.3 shows 2002 level of service on the CMP system based on actual conditions. The recommended actions necessary to implement the recommendations of the 2002 CMP update are provided at the end of this chapter.

FIGURE 7.1—2002 CMP OVERVIEW



"Regular Check-Ups" – The CMP roadway system is regularly monitored (annually for highways, every two years for arterials) against the adopted level of service standard.

"See You Next Time" – If the roadway standard is met for a given segment, then the segment is evaluated again in two years for CMP arterials and next year for CMP freeways and conventional highways.

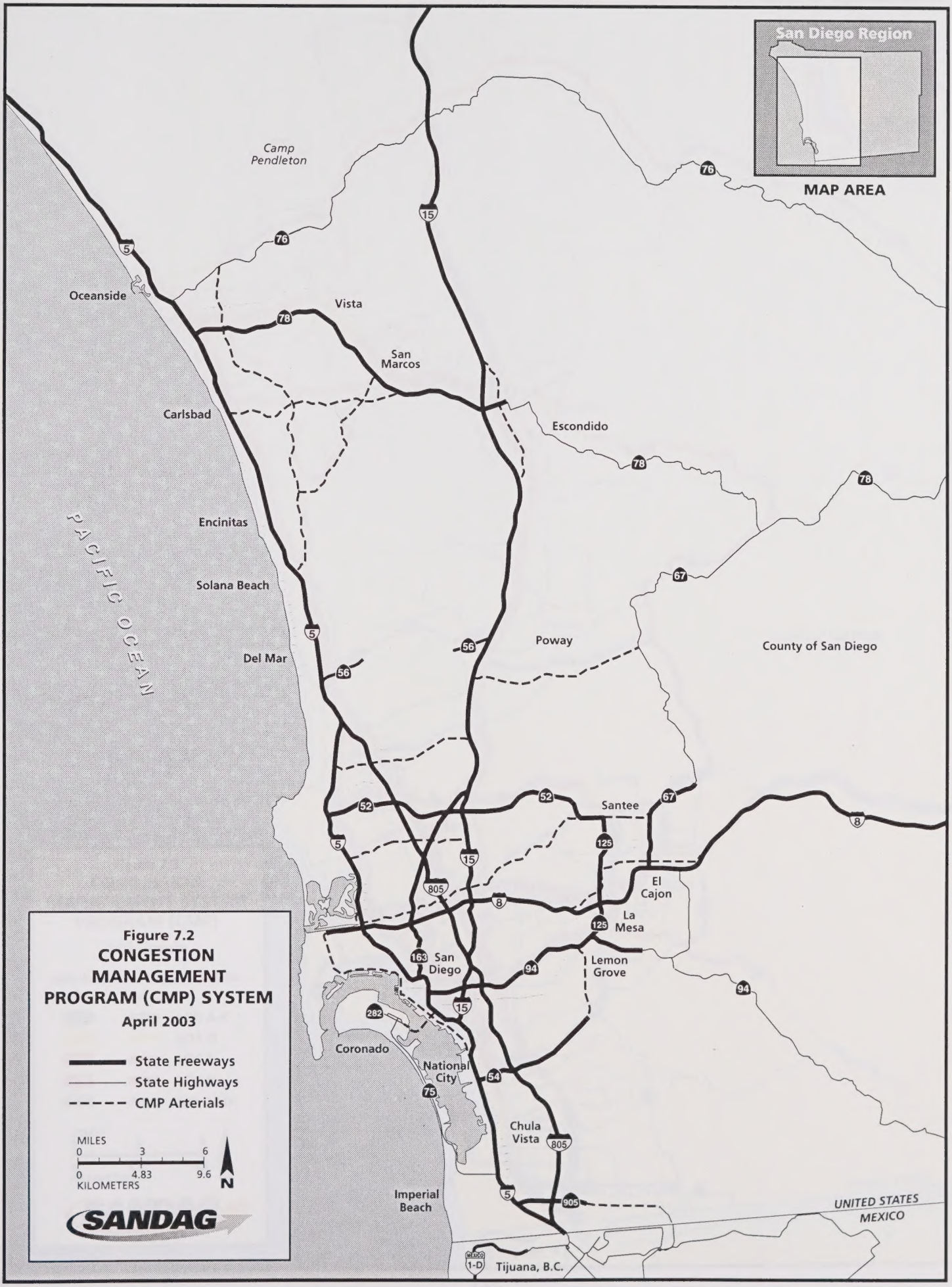
"More Tests Are Needed" – If the roadway standard is not met for a given segment, then the segment is further evaluated.

"Preventive Medicine" – On an ongoing basis, the impacts of new major developments on the CMP system are evaluated, and if there are significant impacts, then an attempt is made to mitigate those impacts.

"Treatment Plan" – This consists of either (1) approved mitigation for a new development project or (2) an approved deficiency plan containing recommendations for improving a roadway's performance.

"Pay Insurance Premium" – If it is not feasible to fully mitigate new development impacts, then the project sponsor has the option of helping fund approved deficiency plan recommendations.

"Medicine Cabinet" – Consists of a number of congestion management strategies for use in preparing deficiency plans and/or to mitigate the transportation impacts of new development projects.


San Diego Region
MAP AREA
Camp Pendleton
Oceanside
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Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 7.2
CONGESTION MANAGEMENT PROGRAM (CMP) SYSTEM
April 2003
State Freeways
State Highways
CMP Arterials
MILES
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0 4.83 9.6
KILOMETERS
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San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
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Solana Beach
Del Mar
PACIFIC OCEAN
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
UNITED STATES
MEXICO
Tijuana, B.C.
Figure 7.3
CONGESTION MANAGEMENT SYSTEM PROGRAM (CMP)
2002 Update
2001 Peak Hour Level of Service
Freeways
Arterials
LOS A-C
LOS D
LOS E
LOS F
NO DATA
MILES
0 3 6
0 3.18 9.6
KILOMETERS
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SANDAG

ADVANCED TECHNOLOGIES

The purpose of Advanced Technologies is to develop an integrated Intelligent Transportation Systems Strategy (ITS Strategy) using the latest advances in technology to better manage our transportation systems performance and safety. The concept of developing an ITS Strategy was established under a larger national planning effort initiated by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Under ISTEA, the U.S. Department of Transportation encouraged the application of advanced transportation systems and technologies to improve the efficiency and safety of the nation's existing transportation infrastructure.

Advanced technologies will help better manage our transportation systems performance and safety.

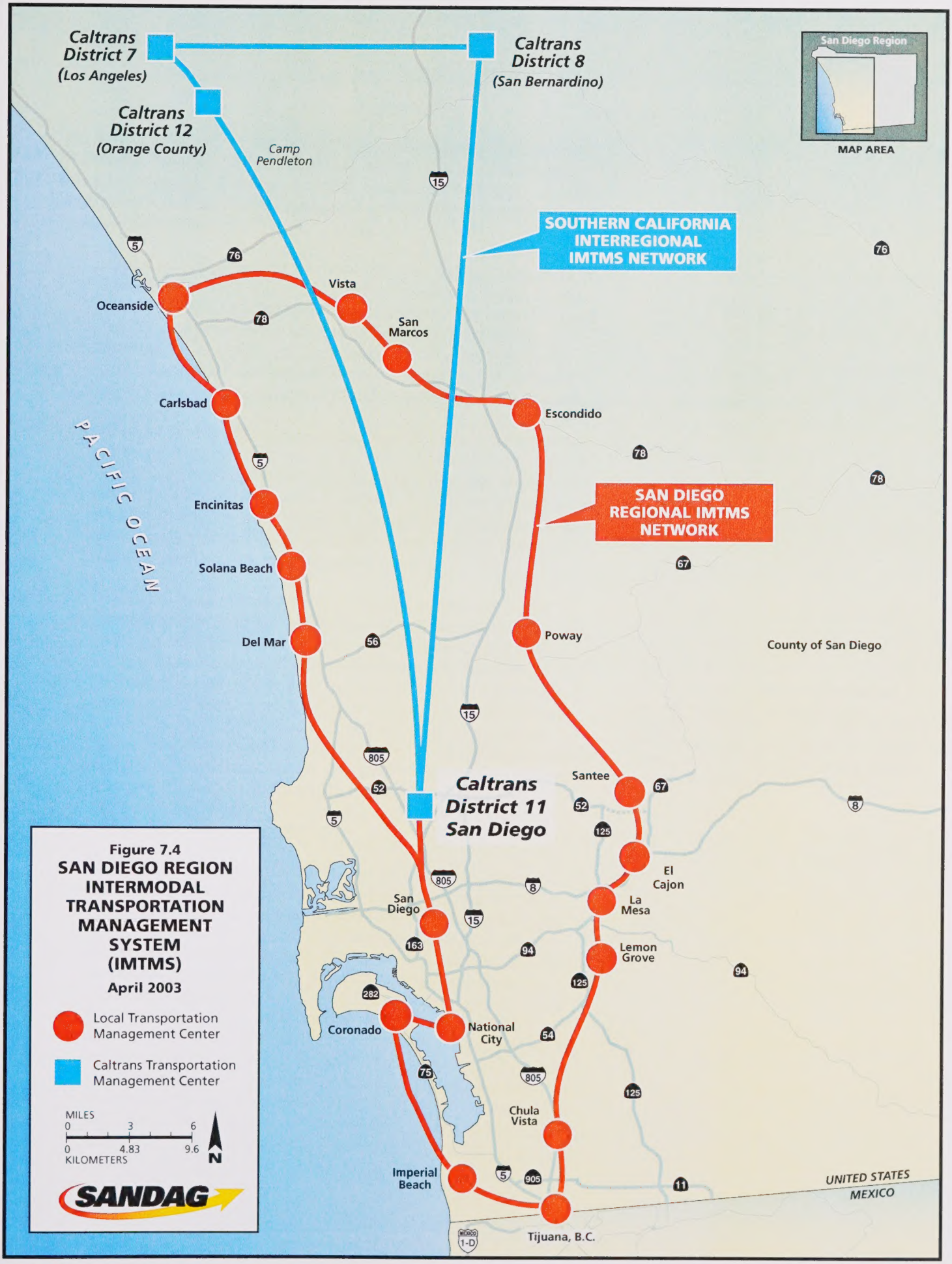
The latest federal legislation, the Transportation Equity Act for the 21st Century (TEA-21), further supports this national effort and provides guidelines for inclusion of the regional ITS Strategy and architecture in the regional transportation planning process. SANDAG integrated a regional ITS Strategy with the previous 2020 RTP. The following section discusses the status of current ITS activities in the region.

The cornerstone of the region's ITS Strategy is the development of the Regional Intermodal Transportation Management Systems Network that will interconnect the region's local transportation management centers (see Figure 7.4). Completion of this Network will enable the modal agencies to cooperatively manage the overall performance of both the local and regional transportation systems. The Network will connect the San Diego region to the other regions in Southern California and eventually, to all of California and other states.

The cornerstone of the region's ITS Strategy is the development of the Regional Intermodal Transportation Management Systems Network that will interconnect the region's local transportation management centers.

SANDAG's ITS Strategic Plan identifies the future needs of the region's transportation system users and local agencies and recommends the appropriate technologies to serve those needs through better management and integration of the regional transportation system. The ITS Architecture for the San Diego region is described in the Technical Appendices.

To date, SANDAG has allocated approximately $30 million in federal Congestion Mitigation and Air Quality (CMAQ) funds toward the improvements now underway. Closed circuit television incident detection systems are being installed or are in the design phase for several of our major freeways (Interstates 5, 8, 15, and 805, and State Routes 75, 94, and 163). Installation of changeable message signs and ramp meters also are planned where missing today.


Caltrans District 7
(Los Angeles)
Caltrans District 12
(Orange County)
Caltrans District 8
(San Bernardino)
San Diego Region
MAP AREA
Camp Pendleton
SOUTHERN CALIFORNIA INTERREGIONAL IMTMS NETWORK
SAN DIEGO REGIONAL IMTMS NETWORK
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
PACIFIC OCEAN
Caltrans District 11
San Diego
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure 7.4
SAN DIEGO REGION INTERMODAL TRANSPORTATION MANAGEMENT SYSTEM (IMTMS)
April 2003
Local Transportation Management Center
Caltrans Transportation Management Center
MILES
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The Network includes the following modal management subsystems to provide the agencies with the necessary systems and tools to better manage the region's freeways, arterials, transit, incidents and emergency response, special events, commercial vehicle operations, and traveler information:

- **Freeway Management System** – enables Caltrans District 11 to better manage the region's freeways through installation of new computer hardware, software, loop detectors, and cameras. It will help coordinate freeway operations with adjacent regions, improve incident detection and clearance, coordinate freeway-arterial operations with the local agencies, and further refine ramp metering systems to dynamically adapt to changes in traffic.

- **Arterial Traffic Management System** – enables local agencies to better manage traffic with improved hardware and software. It enables the local agencies to coordinate traffic signal timing across jurisdictional boundaries, optimize traffic flow on regionally significant arterials, manage traffic caused by special events and major accidents, and coordinate arterial signals with freeway ramps, transit service, and rail grade-crossings.

- **Transit Management System** – provides transit with a field operations management system to enable improved route planning, scheduling, and performance monitoring. The system, using vehicle tracking and on-time performance monitoring technologies, will provide emergency alert tracking and signal advantage to keep transit vehicles on-time. The system also will provide real-time transit information through kiosks, message boards, and the traveler information system project. The necessary communications infrastructure to support automated passenger counting (to support performance monitoring efforts) and electronic fare payment to make boarding more convenient and efficient also would be provided.

- **Traveler Information/Performance Monitoring Systems** – collects real-time data from the freeway, arterial, and transit systems described above and provides traveler information. This system will meet two key needs: enable the delivery of real-time traffic and transit conditions to the traveling public, and provide an ongoing source of data to transportation planners and researchers to identify efficiency and safety improvements to the transportation system. Envisioned for the future in MOBILITY 2030 is the dissemination of traveler information through wireless cellular and personal digital assistant (PDA) Internet devices and in-vehicle navigation systems. Advanced technology already allows Internet-based text messages to be converted to voice – so that future traveler information devices will "speak to you," rather than require you to take your eyes off the road.

This Advanced Traveler Information System will meet two key needs: enable the delivery of real-time traffic and transit conditions to the traveling public, and provide an ongoing source of data to transportation planners.

Since the adoption of the 2020 RTP, the San Diego region became involved in two ITS program activities. First, the region is a part of the Southern California ITS Priority Corridor (Los Angeles to San Diego) – a national ITS demonstration corridor designated by Congress. SANDAG serves as the contract administrator for the Priority Corridor demonstration project on behalf of the 22 agencies which make up this important multi-regional effort to build a Southern California Transportation Systems Management Network (completed January 2001). The Corridor Network project provides the essential communications and "translator-like" software services necessary to link the dissimilar local and regional agency systems so that they can work together cooperatively.

Second, the San Diego region is now beginning to build the Regional Network and modal management subsystems – freeways, arterials, transit, and traveler information – so that the individual modes can operate in a coordinated manner. The current initial projects for the Regional Network are scheduled to be delivered between now and 2004 and are described in the Technical Appendices. The Technical Appendices provide a listing of regional projects completed or currently underway.

FREEWAY SERVICE PATROL

The Freeway Service Patrol provides rapid removal of disabled vehicles, helps stranded motorists, assists with traffic accidents, and removes debris from the roadway as needed.

The purpose of the Freeway Service Patrol (FSP) is to alleviate traffic congestion associated with non-recurring traffic incidents. The FSP program supports the MOBILITY 2030 goals of Reliability and Efficiency by minimizing disruptions to the freeway system caused by minor traffic incidents. This is accomplished by providing for the rapid removal of disabled vehicles, helping stranded motorists, assisting with traffic accidents, and removing debris from the roadway as needed.

The FSP continuously patrols selected freeway segments during both morning and afternoon commute periods, Monday through Friday. All FSP services are provided free of charge to the motorists. The program is funded by SANDAG and Caltrans, with field supervision provided by the California Highway Patrol. Currently 26 tow trucks are used for seven FSP "beats" or patrols covering portions of Interstates 5, 8, 15, 805 and State Routes 54, 78, 94, 125, and 163 for a total of 204 miles of coverage. Approximately 60,000 motorists are assisted annually.

In response to changing traffic patterns and traveler behavior, future expansions of the FSP are planned to improve both the current coverage and to expand the program's coverage to more highways and off-peak periods, including weekends. Other FSP improvements may include a rotator truck during major traffic incidents (which greatly reduces the duration of the incident) and/or additional FSP service during major capital construction projects. MOBILITY 2030 includes a doubling of current funding levels for expanded FSP.

HIGH OCCUPANCY TOLL (HOT) LANES

MOBILITY 2030 includes a robust network of Managed/HOV lanes. One way to "manage" these lanes is to restrict access to multi-occupancy vehicles. Another management technique is to charge a fee for use of the lanes. This second concept is typically referred to as high occupancy toll or "HOT" lanes.

MOBILITY 2030 includes plans for HOT lanes on our major north-south freeways, including Interstates 5, 15, and 805. These lanes are limited access lanes in which carpools, vanpools, and buses have first priority and travel for free, while other vehicles gain access by paying a fee. The lanes are managed through variable pricing to maintain free flow conditions even during rush hours.

MOBILITY 2030 includes plans for high occupancy toll, or "HOT" lanes on our major north-south freeways, including Interstates 5, 15, and 805. These lanes are limited access lanes in which carpools, vanpools, and buses have first priority and travel for free, while other vehicles gain access by paying a fee.

The expansion of HOT lanes builds upon the success of the I-15 FasTrak™ program, which has been operating since 1996 on the I-15 Express Lanes from the I-15/SR 163 junction to SR 56. The award winning I-15 FasTrak™ program is the only facility to employ "dynamic pricing" in the country. It uses electronic toll collection technology to vary solo driver fees in real-time. By state law, the net revenues generated by the program are used to improve transit and carpool services in the I-15 corridor. The program revenues currently fund the Inland Breeze express bus service in the corridor.

The award winning I-15 FasTrak™ program is the only facility to employ "dynamic pricing" in the country.

The HOT lanes proposed throughout the region are detailed in the Systems Development Chapter. Net revenue from HOT lane programs will be used for transit service in the same corridor.

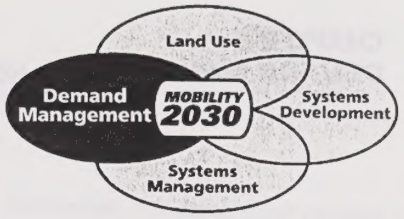
ACTIONS

The following actions support the Plan's System Management Chapter recommendations.

SYSTEMS MANAGEMENT

Proposed Actions	Responsible Parties
Performance Monitoring – The following proposed actions support the RTP goals of Mobility and Reliability.	
1. Implement a regional system to monitor 100 percent of the region's urban freeways and on-ramps, and CMP arterial network through use of automated data collection systems.	Caltrans, SANDAG, & local jurisdictions
2. Implement monitoring of regional transit service through the use of automated data collection and vehicle location systems.	SANDAG, MTDB, NCTD, & Caltrans
3. Provide regular transportation system performance reports to the SANDAG Board of Directors and integrate performance monitoring data into ongoing planning and programming activities. Develop an annual State of the Commute report beginning in FY 2004.	SANDAG
4. Maintain an annual program to monitor bicycle traffic along key bicycle facility corridors, and summarize in annual State of the Commute reports.	SANDAG, local jurisdictions, & transit agencies
5. Regularly monitor average trip travel times by mode for select travel corridors.	SANDAG
Congestion Management Program – The following proposed actions support the RTP goals of Reliability and Efficiency.	
6. Prepare and monitor implementation of deficiency plans as a tool to address congestion "hot spots" in the region.	SANDAG, local jurisdictions, Caltrans, & transit agencies
7. Assemble, update, and disseminate information on low cost, near-term strategies to better manage congestion.	SANDAG
Intelligent Transportation Systems – The following proposed actions support the RTP goals of Mobility, Reliability, and Efficiency.	
8. Complete the ramp metering system in the urban area.	Caltrans
9. Set metering timing to maximize the efficiency of the overall transportation network, while equitably distributing wait times along freeway corridors.	Caltrans, SANDAG, transit agencies, & local jurisdictions
10. Regularly update the Regional ITS Plan and maintain a priority list of projects and activities to support the modal agencies' needs.	SANDAG

SYSTEMS MANAGEMENT	
Proposed Actions	**Responsible Parties**
11. Coordinate development and implementation of ITS projects within the San Diego region and with similar projects elsewhere in Southern California so that the network is interoperable and compliant with the national and regional ITS architecture.	SANDAG
12. Develop a TMS Action Plan to improve the efficiency and safety of the overall transportation system and modal elements.	SANDAG
Freeway Service Patrol – The following proposed actions support the RTP goals of Reliability and Efficiency.	
13. Regularly monitor the FSP program and modify as needed in response to changing traffic and commute patterns.	SANDAG
14. Implement an automated vehicle location (AVL) system to accurately track the location of FSP vehicles.	SANDAG
15. Seek additional federal, state, and local funding to expand the FSP program to other freeways and roadways and to off-peak commute times. Evaluate implementation of a rotator truck for the program.	SANDAG
High Occupancy Toll Lanes – The following proposed actions support the RTP goals of Mobility and Efficiency.	
16. Expand the HOT lane pricing concept to other existing or planned HOV/managed lanes to maximize lane capacity and obtain necessary state and federal legislation/approvals.	SANDAG & Caltrans
17. Consider peak period pricing as an alternative whenever major new highway capacity is added.	SANDAG & Caltrans



CHAPTER 8
DEMAND MANAGEMENT: HOW CAN WE TAKE THE PRESSURE OFF THE SYSTEM?

The wide distribution of homes, offices, schools, and other major activity centers in the region, along with our growing economy and population, place ever increasing demands on our transportation system. This demand has challenged our ability to operate a reliable and efficient system. The continued growth in the number of vehicle trips in the region stretches our ability to keep pace. If we're going to have any chance at reducing congestion and improving regional mobility, significant steps must be taken.

Recognizing that we cannot build our way out of congestion by adding new freeways or fixed rail transit services, MOBILITY 2030 shifts the emphasis from just expanding the transportation system to managing the demand on the system, especially during peak periods. Demand Management focuses on reducing trips on the transportation system during rush hours when most of our traffic congestion occurs. Through better management of travel demand, we can relieve some of the pressure on the regional transportation system and improve its efficiency by shifting demand to times or modes that have excess capacity.

By encouraging alternatives to driving alone, Demand Management also supports the Systems Development component of MOBILITY 2030 (Chapter 6). The Plan encourages the development of viable travel choices that include using transit, carpooling, vanpooling, biking, and walking. Demand Management strategies promote these alternative modes – which, in turn, help reduce single occupant vehicle trips – or eliminate trips during rush hours through teleworking and flexible work hours. This Chapter also describes the region's efforts to support non-motorized travel choices, by addressing the biking and walking elements of the Plan; discussion of the regional bikeway network is contained in the Systems Development Chapter of the Plan (Chapter 6).

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MOBILITY 2030 shifts the emphasis from just expanding the transportation system to managing the demand on the system, especially during peak periods.

RIDELINK – REGIONAL TRANSPORTATION DEMAND MANAGEMENT (TDM) PROGRAM

Travel demand strategies are primarily a program of incentives and disincentives that are designed to shift demand to non-rush hour periods. TDM strategies improve the efficiency of the transportation system by helping to reduce or eliminate peak period trips, when the highest travel demand occurs. Employer-sponsored transportation benefits, regional vanpool subsidies, and parking restrictions are examples of TDM strategies that either encourage ridesharing, or discourage single occupant vehicle trips.

The most effective TDM programs combine financial incentives with the provision of alternative travel choices. In addition, the success of many TDM measures such as teleworking, flexible work hours, and vanpooling, are dependent upon cooperation from the region's employers and commuters.

The strategies in the Plan to manage demand are not all new. Since 1995, SANDAG has operated a regional transportation demand management program called RideLink. RideLink is SANDAG's Commuter Services organization that assists employers, employees, and students with identifying and using alternative ways to commute to work or school. In the last year, RideLink staff responded to over 15,000 inquiries for information about ridesharing, transit, and bicycling. These requests were made via the 1-800-COMMUTE telephone line or through the RideLink.org Web site.

RideLink assists employers, employees, and students with identifying and using alternative ways to commute to work or school.

Regional Vanpool Program. This program provides long distance commuters with a cost-effective alternative to driving alone. SANDAG contracts with two vanpool vendors to provide the vehicles, maintenance, and insurance, and provides a $400 monthly subsidy per van to reduce the vanpool lease costs.

- 264 participating vanpools as of March 2003
- 2,324 daily passengers
- 57-mile average one-way distance
- Reduced 45 million vehicle miles last year

Employer Outreach. SANDAG assists employers in developing value-added commuter programs. Valuable tax benefits can accrue to employer and employee alike. SANDAG provides employers with assistance in developing customized transportation management and benefit plans. Outreach efforts include employer presentations, informational forums, and the formation of employer transportation support networks. To increase employer outreach, additional SANDAG account executives are being added to the program.

Telework / Flex Time. RideLink assists employers in developing customized telework and flex time programs. Telework consulting services available through RideLink range from providing employers with information and assistance with policy development, to working alongside employers in program implementation and monitoring. In the past year, RideLink provided telework consulting services to the City of Chula Vista.

Carpool Matching. RideLink maintains a database of commuters who are interested in joining a carpool or vanpool. Customers can request a matchlist online, via telephone, or through their employer. Matchlist requests are mailed to the commuter within a few days of the request. Once a commuter receives the matchlist, it is his/her choice to contact the other commuters listed to form a carpool.

Interested ridesharers can request a matchlist online, via telephone, or through their employer.

Guaranteed Ride Home (GRH) Program. GRH provides a free taxicab ride or 24-hour car rental to those who use a commute alternative at least three days per week. Registered participants can use this service in the event of a family/personal emergency, illness, or unscheduled overtime up to three times per year.

- 2,610 active registrants (as of January 2003)
- 82 participants used the services for a ride home last year

School Services. RideLink also offers a SchoolPool program that helps parents whose children attend the same schools to form carpools. RideLink staff has established 11 partnerships which allow for rewards to be given at the end of every month to those participating SchoolPool families. The winners are randomly chosen from those seeking ride matches the previous month.

RideLink also offers a SchoolPool program that helps parents whose children attend the same schools to form carpools.

Regional Bicycle Locker Program. This program provides cyclists with a dedicated, secure space to park their bikes before or after commute trips. Program participants pay a one-time key deposit fee to reserve a locker at various major transit stations and activity centers. Lockers are used whenever the bicycle commuter makes a trip.

- 645 lockers in the program located at 54 different sites.

New Directions/Emphasis

TDM regulations that mandated employer trip reduction programs were in place in the San Diego region in the 1990s. These regulations, including the San Diego County Air Pollution Control District (APCD) Regulation XIII and the City of San Diego's TDM Ordinance, were enacted primarily for air quality purposes. To reduce air quality emissions from motor vehicle sources, the regulations required larger employers to cooperate with regional TDM efforts to reduce employee commute trips by implementing trip reduction plans for their work sites.

A challenge for the regional TDM program has been to develop a mix of program and services that attracts the attention and makes "business sense" for both employers and commuters.

In 1995, the TDM requirements were rescinded when the region's air quality designation was reclassified from "severe" to "serious." The business community at the time also objected to the mandated trip reduction programs. Since the mid-1990s, participation by area employers in TDM efforts has been entirely voluntary, and thus the impact of the regional demand management program has been somewhat diminished.

In the voluntary environment, a challenge for the regional TDM program has been to develop a mix of program and services that attracts attention and makes "business sense" for both employers and commuters. MOBILITY 2030 calls for the development of innovative policy approaches that support expanded financial incentives and increased promotion of viable alternatives to the solo commute.

A policy objective in MOBILITY 2030 is to achieve a five percent reduction in peak period commute trips through Demand Management strategies. This reduction is premised on increasing participation of area employers in e-work strategies, more long distance commuters joining vanpools, and the development of a robust, regionwide Managed/HOV network that provides significant travel time savings for carpools, vanpools, and transit riders, among other strategies.

Regional TDM Vision

TDM strategies hold great potential to improve mobility in the San Diego region. The ability for TDM to influence commuter choice is directly related to the emphasis that is placed on strategies, such as the extent of incentives programs, the alternatives available to commuters, and the participation by employers.

MOBILITY 2030 calls for the development of a Regional TDM Vision. This vision will help guide the development of more far-reaching TDM strategies. The development of such a vision will require collaboration between local jurisdictions, transportation providers such as MTDB, NCTD, and Caltrans, and area employers. Additionally, close coordination will be required with the ongoing development of the region's Congestion Management Program (CMP) described in Chapter 7, as some of the products of the CMP will become key inputs to the Regional TDM Vision process.

SANDAG will establish a working group to help guide the development of the Regional TDM Vision. Some of the desired outcomes of the visioning process will be to identify opportunities and strategies for the implementation of local TDM programs, develop guidelines for more aggressive incentives and/or disincentives, and develop strategies for increasing collaboration with area employers. Anticipated emphasis areas include:

Telework / e-Work. Teleworkers or e-workers are wage and salary employees who conduct some or all of their daily work activities from their home or a remote site other than at the normal work site in order to avoid commuting during peak periods.

Despite the large number of progressive and entrepreneurial businesses based in the San Diego region, the growing number of knowledge-based jobs, and the high number of households with personal computers and Internet access, the total number of people who participate in telework remains less then five percent of all workers. Based on recent telework surveys, it is neither the lack of technology nor the unwillingness of employees that limits the numbers of teleworkers in the region. Rather, it is the lack of support and trust from individual supervisors and upper management in the region's businesses and agencies that hampers the growth of telework in the region.

Lack of support and trust from individual supervisors and upper management in the region's businesses and agencies hampers the growth of telework in the region.

To encourage greater participation in e-work and other home-based strategies among the region's employers, SANDAG will partner with local jurisdictions, industry, and academia to establish a Regional Telework Partnership. The Partnership, which is planned to launch in FY 2004, will provide professional consulting services in core areas related to telework policy, administration, infrastructure and organizational development. The partnership will promote, market, educate, facilitate and encourage San Diego's business community to embrace telework strategies.

Financial Incentives. Financial incentives have long been observed as an effective motivator to help solo commuters make a switch to an alternative transportation mode. The recent increase in the monthly regional vanpool subsidy is evidence of this effect as the number of vanpools formed in the region increased 40 percent over the past 12 months, far exceeding the previous 12 months growth of 17 percent.

The recent increase in the monthly regional vanpool subsidy is evidence of the effectiveness of financial incentives, as the number of vanpools formed in the region increased 40 percent over the past twelve months.

To encourage larger numbers of commuters to switch to an alternative commute mode, more aggressive financial incentives will be studied and an incentive program will be initiated. The program will develop strategies to test varying levels and types of incentives for employers and commuters who participate in alternative commute modes that are not currently covered by other incentive programs (e.g., telework, carpooling, bicycling, walking, and for-profit express bus and shuttle services). The initial goal is to have 20 companies participate in the incentive program for a six-month period.

Flex hours and compressed work schedules are simple, yet powerful tools that employers have to help reallocate travel demand to periods outside the daily peak.

Alternative Work Schedules. Like the e-worker who avoids the peak period commute by working from home one or more days per week, the employee who participates in a flex schedule or compressed hours program can avoid commuting during peak periods. The employee does not necessarily work from home, but rather arrives at work before or after the morning rush hour and/or leaves work before or after the evening rush hour. Flex hours and compressed work schedules are simple, yet powerful tools that employers have to help reallocate travel demand to periods outside the daily peak. For example, a "9/80" work schedule helps eliminate one day of home-to-work commuting every two weeks.

To encourage more employer participation, SANDAG plans to partner with organizations in the region that have successfully adopted alternative work schedules. These partnerships are envisioned to provide the catalyst for marketing and promoting alternative work schedules to a broader audience. Marketing materials will be developed that focus on alternative work schedules. SANDAG will seek to participate in seminars, workshops, and similar forums to promote and educate organizations regarding the benefits of alternative work schedule programs.

The total number of vanpools remains relatively small when compared to similar size urban centers across the country.

Vanpools. While there has been a recent increase in the number of vanpools operating in the San Diego region, the total number of vanpools remains relatively small when compared to similar size urban centers across the country. This may be explained, in part, by the absence of a well-developed regional HOV network, the lack of employer trip reduction mandates, and/or the relatively short commute trips being made into and through the region. (The average work trip is 10.5 miles.)

To encourage more commuters to participate in vanpooling, especially those commuting from the outlying residential communities, the region will increase vanpool marketing activities and explore opportunities to increase incentives to attract additional participants. SANDAG will work with local jurisdictions to develop creative revenue sources for additional financial incentives, such as using portions of development impact fees to reduce the cost of vanpool ridership for community residents. Additional marketing may include developing individual vanpool Web pages on a pilot basis to test the value of providing specific information regarding vanpool routes, meeting points, and schedules to attract new vanpool riders. The goal is to maintain a 30 percent growth in the number of vanpools in the program to 460 over the next three years.

For-Profit Service Providers. The region has seen an increase of for-profit transit operators that provide niche services into and through the region. These subscription-based, door-to-door services fill a gap that is not presently being served by the public transit operators. By offering drop-offs and pick-ups at convenient locations to major employment centers, along with value-added services such as en-route movies and books-on-tape, these operators are serving a growing population of long distance commuters.

SANDAG will examine the potential for providing commuters with more information about these various services by including route and schedule information on the RideLink Web site or through the 1-800-COMMUTE line.

Car Sharing / Station Cars. Interest in car sharing and station car programs is increasing throughout the United States. Successful car sharing initiatives in Boston, Seattle, and Portland, and station cars programs in the San Francisco Bay area are being emulated in urban centers around the country. Car sharing is essentially organized short-term auto rental, often located in downtown areas near public transit as well as near residential communities and employment centers. Car sharing organizations operate fleets of rental vehicles that are available for short trips by members who pay a subscription fee plus a per trip charge. Using smart card technology, car sharing is envisioned as a complement to the region's public transit services, which will incorporate smart card technology system-wide in the near future.

Car sharing is essentially organized short-term auto rental, often located in downtown areas near public transit as well as near residential communities and employment centers.

Car sharing and station cars help provide the "missing link" between transit and private autos. Shared cars can provide mobility "insurance" similar to a GRH program as well as provide an opportunity to combine shared company fleets. Providing opportunities for car sharing organizations to locate vehicle fleets near major transit facilities can help attract new transit ridership from areas not well served by local transit services.

SANDAG will collaborate with transit partners and car sharing organizations to develop car sharing models that address gaps in the transit network. The initial model will address the gap between transit and the region's dispersed employment centers, particularly those associated with the Coaster commuter rail stations such as Sorrento Valley. In addition, the gap between home and transit access will be addressed, with station cars targeted for Coaster stations in communities such as Carlsbad and Oceanside. Innovative alternative vehicles that demonstrate the use of state-of-the-art technologies will be examined for their suitability in these applications.

Employers hold the key to changing commute behavior, whether it means offering a company-sponsored vanpool, a company-paid benefit, or support for telework.

TDM Marketing Activities. Outreach to employers has proven to be the most effective method for promoting alternative travel to work choices to the largest numbers of the region's commuters. Employers hold the key to changing commute behavior, whether it means offering a company-sponsored vanpool, a company-paid benefit, or support for telework.

To help promote and market TDM programs and services, a major emphasis will be to partner with industry to co-market transportation alternatives to employers and commuters (e.g., collaborate on e-work advertising campaigns with broadband Internet service providers.) Periodic advertising campaigns, tied to the launch of new commuter services will serve to increase awareness and build interest among employers. Promotional and public relations events, tied to new commuter services, will be conducted to provide opportunities to address larger audiences.

Promotions. Every year in May, RideLink sponsors a Bike to Work Day promotion. The purpose of the event is to encourage commuters to try bicycling as an alternative to driving to school or work. In May 2002, 4,500 riders participated in Bike to Work Day. Survey data indicates that 25 percent of the participants are new to bicycle commuting. Follow-up surveys show that approximately 25 percent of new riders continue to ride to work at least some days. In 2002, during the week of October 7-11, a Rideshare Week promotion was held to build awareness of alternatives to the rush hour commute.

Opportunities also exist for increased interregional coordination when it comes to marketing and outreach to commuters whose trips originate from nearby regions, such as Western Riverside County, Orange County, and Baja California/Mexico. We will strengthen our relationships with interregional partners to improve coordination and look for ways to increase our reach through collaborative marketing efforts.

On-line Carpool Matching. To increase usage of RideLink carpool program, SANDAG will study the deployment of non-traditional access to the region's carpool matching service. Providing real-time access to ridematching services via the Internet will help provide immediate information to interested commuters while they are motivated to act. Various access points to the on-line matching system, such as Web portals and kiosks, will be studied to determine their value towards increasing the number of successful rideshare matches.

Construction Mitigation. One very tangible way that TDM measures complement and support Systems Development is through applying TDM as mitigation for major highway construction projects. While temporary in nature, construction-related TDM measures are designed to encourage solo commuters to avoid construction-related traffic congestion by choosing a mode alternative or commuting during off-peak periods. Here, the concern over lengthy construction-related delays can be a key motivator to encourage commuters to switch either their mode or time of travel. Once a commuter takes action and chooses a commute alternative, they may be more likely to continue using an alternative mode after the highway construction is complete.

SANDAG will form partnerships with Caltrans, local jurisdictions, transit agencies, and employers to develop commuter-oriented solutions to traffic congestion caused by highway construction. The model for this collaboration was developed in conjunction with Caltrans for the I-5 / I-805 widening project. Increased funding and promotion of alternative commute options during the construction period, and outreach to employers in the vicinity of the highway construction, are key components of construction-related TDM activities. Construction-related TDM measures complement and support Systems Development by helping reduce demand in and around areas affected by major system construction projects.

The Plan includes about $440 million spread over 29 years to fund the new programs that encourage telework, alternative work schedules, and expanded outreach to employers, schools, and residential communities.

Demand Management Funding

Providing sufficient funding is critical to the implementation of the Demand Management strategies contained in MOBILITY 2030. The Plan includes about $440 million spread over 29 years to fund the new programs that encourage telework, alternative work schedules, and expanded outreach to employers, schools, and residential communities. This funding commitment is double the previous levels for regional TDM activities. Because TDM measures are relatively low-cost solutions that can be implemented more quickly than major capital projects, the same level of TDM funding is included in both the Revenue Constrained Plan and Reasonably Expected Revenue scenarios.

Performance measures, many of which are already in place, will be used to monitor and report on the effectiveness of each element of the regional TDM program. Each element in the program will be managed by objectives, and new performance monitoring criteria will be developed as part of the Regional TDM Vision effort.

IMPROVING NONMOTORIZED ALTERNATIVES

Bicycling and walking are quintessentially local modes of transportation, but both can play a part in the region's transportation network. Nearly 40 percent of all home-to-work trips could be made in about 30 minutes by bicycle, and 40 percent of home-based trips not associated with work are within ten minutes by bike.

Virtually every trip begins and ends with a walk, and access to transit is an especially important role for walking, but walking can be a viable means of travel in and of itself. A short trip to the library, post office or ball field can easily be made on foot where the transportation network serves the needs of pedestrians. These short trips, when made by auto, are among the most inefficient in terms of air quality and fuel efficiency. Making bicycling and walking more attractive means of travel is not difficult from an engineering point of view. However, walking does require changes in the way we use land, build our transportation infrastructure, and maintain our public rights of way. It also requires education and marketing that encourages people to expand the way they think about their transportation choices.

HOW MOBILITY 2030 PROMOTES NONMOTORIZED TRAVEL

- Support for universal bicycle and pedestrian access
- Support for land use and street design standards that make bicycling and walking safer, more practical and attractive
- Support for continuing educational and promotional campaigns

Transportation facilities should be designed to encourage bicycle and walking trips, and not be a barrier to those trips.

Making the region's transportation network more accessible will require an expanded financial commitment to bicycling and walking infrastructure. Some improvements can be accomplished relatively easily when new streets are built or old ones are reconstructed. However, some parts of the region's transportation network will need to be retrofitted without the benefit of a major reconstruction. Financing these improvements is one of the challenges that the region faces.

Accommodating Bicycling and Walking

People traveling on foot or by bicycle have the same needs as motorists. They want safe and convenient ways to travel, and they need access to most all of the same destinations as motorists. To meet this need, the region's transportation system should be designed and built to accommodate bicyclists and pedestrians. This notion has been established by both federal and state policy. The 1999 federal guidance regarding the bicycle and pedestrian provisions in TEA-21makes clear that accommodating bicycle and pedestrian travel should be a routine part of the planning, designing, construction, and operation of every federally funded transportation project. Likewise, Deputy Directive 64 commits Caltrans to "fully consider the needs of nonmotorized travelers in every aspect of its work." Local and regional agencies need to take the same approach when developing transportation improvements.

Most bicycle and walking trips are relatively short and within a single community. While these community trips may be focused on a neighborhood commercial district, school, or other community service like public transit, the trip origins are widely dispersed. Because of this, the transportation network must accommodate bicycle and pedestrian travel. Transportation facilities should be designed to encourage bicycle and walking trips, and not be a barrier to those trips. Whether a freeway interchange, local arterial, or residential street, the needs of bicyclists and pedestrians should be included in the program from the start and thus, the cost of providing that access can be minimized, especially when compared to the cost of retrofitting an existing facility.

Making Bicycle and Pedestrian Friendly Communities

The region's transportation system needs to provide a full range of transportation choices in a balanced and integrated manner. Sidewalks and streets do not accomplish this alone. A complementary relationship must exist between the transportation system and land uses that it serves.

Planning and Designing for Pedestrians

SANDAG recently took a significant step toward establishing more walkable communities when it adopted *Planning and Designing for Pedestrians, Model Guidelines for the San Diego Region (June 2002).* This document provides guidance on a wide range of factors affecting walkability such as:

- Providing a mix of land uses within communities that makes more destinations accessible on foot
- Building interconnected street networks that provide more direct access
- Designing streets that connect a community rather than divide it
- Street crossing designs and traffic calming measures that create a more pedestrian-friendly street environment while minimizing the impact to traffic flow
- Streetscapes designed to a pedestrian scale, and site layouts that encourage pedestrian access
- Sidewalk design that provides space for the variety of functions the sidewalk must perform

Ideally, this type of development should be focused along transit corridors and around transit hubs.

SANDAG will assist member agencies in developing policies that facilitate implementation of these developments. In addition, regional transportation funding decisions will be influenced by how well the transportation projects and related land uses accommodate bicycling and walking.

Access to Public Transit

The principles in *Planning and Designing for Pedestrians* support the region's goals for improving access to public transit. Mixed land use and network connectivity make it easier for public transit to efficiently take people where they want to go. Well-designed sidewalks and crosswalks make walking to and from transit more attractive. The guidelines show how to do this, and how to incorporate transit stops into pedestrian walkways so there will be room for both.

Calming traffic on pedestrian-oriented streets usually makes them more attractive places to ride a bike.

Bicycle Facilities and Access

Communities that support walking as a means of access usually are bicycle-friendly communities as well. The mix of land uses bring more destinations into easy bicycling range where the bicycle can fill the gap between destinations that can be reached on foot and those that would require a transit or auto trip. Calming traffic on pedestrian-oriented streets usually makes them more attractive places to ride a bike.

Beyond these improvements, bicycle access is improved where the road network provides space for bicyclists and road surfaces are well maintained. Where the street network cannot adequately serve bicyclists, separate bike paths should be built. These bike paths or trails also can provide access for pedestrians. Also important are adequate bike parking and other support facilities and ongoing education and promotional programs.

Bike Parking. Bicycle theft is one of the deterrents to bicycle travel, but it can be overcome by providing quality bicycle parking facilities. Fortunately, good bicycle parking can be provided at a very modest cost. In contrast, poor quality bike parking is often underutilized because it is either inconvenient, does not effectively secure the bike, or both. Through its Bicycle-Pedestrian Working Group, SANDAG has developed bicycle parking guidelines that should be disseminated and adopted around the region. For bicycle commuting trips, employers should be encouraged to provide bike lockers or other high security parking.

On-Demand Bike Lockers. On-demand bicycle lockers allow bicycle commúters to use any locker at a given site on a first-come, first-serve basis. Such lockers are being pilot tested for consideration for new and replacement installations of the region's existing bicycle lockers. These state-of-the-art lockers use electronic keys, allow multiple users the opportunity to use the same locker, and have the ability to provide information about utilization and demand. The potential benefits of the on-demand lockers include reduced program administration costs, reduced inappropriate usage of the lockers, and increased utilization. In addition, the total number of lockers required at any given site may be reduced as the number of lockers required only needs to meet the peak demand. Currently a locker is provided for every registered user, regardless of how often that person uses it. Upon successful completion of the pilot program, the entire system could be converted as old lockers reach the end of their useful life.

Support facilities such as clothing lockers and showers greatly enhance the experience of bicycling to and from the workplace and also serve to encourage employees to consider bicycling as a viable commute choice.

Support Facilities. Support facilities such as clothing lockers and showers greatly enhance the experience of bicycling to and from the workplace and also serve to encourage employees to consider bicycling as a viable commute choice. Where employment density warrants, local agencies should consider policies that encourage building owners and employers to provide clothing lockers and showers for their employees to accommodate longer bike trips.

Education on proper bicycle riding can significantly improve the bicyclist's safety, which in turn can help to overcome some of the resistance to bicycling.

Bicycle Education. The most frequently cited reason for not riding a bicycle is concern for personal safety. This is understandable since bicyclists are very vulnerable in collisions with motor vehicles. However, education on proper bicycle riding can significantly improve the bicyclist's safety, which in turn can help to overcome some of this resistance. Since there is no regionwide bicycle safety education program, efforts should be made to make bicycle safety information available to both adults and children. Bicycle education for children should be provided through the schools. Instituting an ongoing program in the schools will likely require development of a teacher training program. Effective programs that can serve as a model have been instituted in Texas and Nevada. Opportunities also may exist to distribute bicycle safety materials to adults in conjunction with campaigns that promote alternatives to driving alone, but a program will have to be developed and funding sources will have to be identified for such an effort. To further encourage both bicycling and walking, the Plan also recommends continued support for RideLink's annual Bike to Work Day and support for events like the annual Walk Your Child to School Day.

Bicycle and Pedestrian Program Funding

Financing bicycle and pedestrian projects, and providing incentives for community designs that support these modes, is one of the challenges facing the region. Often, no separate funding for these improvements is required when bicycle and pedestrian infrastructure improvements are included as part of a larger transportation project.

However, there are many communities in the region that would benefit from improved bicycle and pedestrian facilities that do not anticipate new construction or major redevelopment. Financing improvements in these areas is often difficult. The annual revenues from the Transportation Development Act for bicycle and pedestrian projects (currently about $2.5 million), and the $1 million in annual *TransNet* funds set aside for bicycle projects, provide less than half the funds requested in each annual funding cycle.

The annual revenues from the Transportation Development Act for bicycle and pedestrian projects (currently about $2.5 million), and the $1 million in annual TransNet funds set aside for bicycle projects, provide less than half the funds requested in each annual funding cycle. MOBILITY 2030 fills some of this funding gap by doubling annual bike and pedestrian funding levels.

No accurate estimates exist for needed pedestrian infrastructure improvements, but based on existing bicycle transportation plans and additional estimates provided by local jurisdictions, current bicycle project needs for the region are at least $200 million. Additional funding will be required to support a significant near term effort to implement the nonmotorized component of the Plan.

MOBILITY 2030 fills some of this funding gap by doubling annual bike and pedestrian funding levels.

ACTIONS

The following actions support the Plan's Demand Management Chapter recommendations.

DEMAND MANAGEMENT	
Proposed Actions	**Responsible Parties**
RideLink – Regional TDM Program – The following proposed actions support the RTP goals of Mobility, Efficiency, Sustainability, and Equity.	
1. Develop a Regional TDM Vision.	SANDAG, member agencies, & employers
2. Increase vanpools participating in Regional Vanpool Program by 30 percent over the next three years.	SANDAG
3. Establish regional telework and alternative work hours partnerships; promote telework, flex schedules, and compressed work weeks.	SANDAG & industry partners
4. Develop incentives that reward carpooling, bicycling, and e-work.	SANDAG
5. Implement a car sharing / station car program.	SANDAG, Caltrans, MTDB, & NCTD
6. Expand marketing, outreach, and education to employers and schools.	SANDAG
7. Develop guidelines for working with for-profit transit services to supplement/complement public transit services.	SANDAG, MTDB, & NCTD
8. Collaborate with industry interregional partners on co-promotion and marketing RideLink services to employers and commuters.	SANDAG, industry, & interregional partners
9. Monitor changes in ridesharing and telework and monitor TDM program effectiveness.	SANDAG
10. Collaborate on development of construction mitigation TDM plans.	SANDAG, Caltrans, MTDB, & NCTD
Improving Nonmotorized Alternatives – The following proposed actions support the RTP goals of Mobility, Accessibility, Efficiency, Livability, Sustainability, and Equity.	
11. Adopt design guidelines for pedestrian and bicycle oriented developments (e.g., *Planning and Designing for Pedestrians*), and implement pedestrian- and bike-friendly development.	SANDAG, local jurisdictions, transit agencies, & Caltrans
12. Monitor changes in bicycle and pedestrian travel and summarize in annual State of the Commute report.	SANDAG

APPENDIX A
THE PLANS

This Appendix includes the Revenue Constrained Plan, Reasonably Expected Revenue, and Unconstrained Revenue scenarios. Detailed highway and transit listings, cost estimates, and phasing are included for the Revenue Constrained Plan and Reasonably Expected Revenue scenarios. For the Unconstrained Revenue scenario, detailed highway and transit listings and cost estimates are provided.

Figure A.1 depicts the 2030 Revenue Constrained Plan. Figures A.2 and A.3 depict the Revenue Constrained Plan highway and transit improvements, respectively. Table A.1 lists the major capital improvements in the Revenue Constrained Plan. Table A.2 includes highway project phasing, and Table A.3 includes transit services phasing and headways for the Revenue Constrained Plan. Table A.4 lists the major transit expenditures by decade for the Revenue Constrained Plan.

Table A.5 lists the major capital improvements in the Reasonably Expected Revenue scenario. Table A.6 includes highway project phasing, and Table A.7 includes transit services phasing and headways for the Reasonably Expected Revenue scenario. Table A.8 lists the major transit expenditures by decade for the Reasonably Expected Revenue scenario.

Table A.9 highlights the differences between the Revenue Constrained Plan and Reasonably Expected Revenue scenarios.

Figures A.4 and A.5 respectively depict the highway and transit improvements in the Unconstrained Revenue scenario. The Unconstrained Revenue scenario is summarized in Tables A.10 through A.12. Table A.10 lists the major capital improvements, Table A.11 lists the major transit expenditures, and Table A.12 lists transit service headways for the Unconstrained Revenue scenario.

Tables A.13 through A.15 summarize the differences between the Revenue Constrained Plan, the Reasonably Expected Revenue scenario, and the Unconstrained Revenue scenario. Table A.13 summarizes the difference in highway projects, Table A.14 summarizes the differences in transit services and headways, and Table A.15 summarizes the difference in transit expenditures between the three revenue scenarios.

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
PACIFIC OCEAN
UNITED STATES
MEXICO
Figure A.1
2030
REVENUE
CONSTRAINED
NETWORK
April 2003
Transit
Highways - HOV/Managed Lanes
Highways - General Purpose Lanes
Highways - Access Improvements
HOV Connectors
Freeway Connectors
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

TABLE A.1—MAJOR CAPITAL IMPROVEMENTS – REVENUE CONSTRAINED PLAN

Transit Facilities	Cost ($ millions)
Mission Valley East Trolley Extension	$450
Oceanside to Escondido Rail	$350
Mid-Coast Light Rail	$590
Oceanside-Escondido Rail Double Tracking and North County Fair Extension	$170
Coastal Rail Double Tracking and Other Improvements*	$420
Coastal Rail Tunnel at Del Mar*	$360
Regional Light Rail Grade Separations	$100
Early Action Project Funding	$80
Improved/New Major Transit Stations and Centers	$470
Direct Access Ramps to Managed/HOV Lanes	$480
Vehicles for New Regional and Corridor Transit Services	$260
Arterial Transit Priority Improvements	$100
Subtotal	$3,830

HOV and Managed Lane Facilities

Freeway	From	To	Existing	Improvements	
I-5	I-805	SR 56	14F	14F + 4ML	$30
I-5	SR 56	Vandegrift	8F	8F + 4ML	$750
I-15	SR 94	SR163	6F/8F	8F + 2HOV	$200
I-15	SR 163	SR 56	8F + 2ML (R)	8F + 4ML/MB	$200
I-15	SR 56	Centre City Pkwy.	8F	8F + 4ML/MB	$340
I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120
SR 52	I-805	I-15	6F	6F + 2HOV	$70
SR 52	I-15	SR 125	4F	6F + 2ML (R)	$170
SR 54/SR 125	I-805	SR 94	6F/4F+2HOV	6F + 2HOV	$90
SR 94	I-5	I-15	8F	8F + 2HOV	$80
SR 241**	Orange County	I-5	---	4T + 2HOV	$420
I-805	SR 905	SR 54	8F	8F + 2 HOV	$150
I-805	SR 54	I-8	8F	8F + 4ML	$450
I-805	Mission Valley Viaduct		8F	8F + 4ML	$250
I-805	I-8	I-5	8F	8F + 4ML	$380
				Subtotal	$3,700

HOV Connectors

Freeway	Intersecting Freeway	Movement	
I-5	I-805	North to North & South to South	$180
I-15	SR 94	South to West & East to North	$150
		Subtotal	$330

Highway System Completion					Cost ($ millions)
Freeway	From	To	Existing	Improvements	
I-5/I-805	Port of Entry – Mexico		---	Inspection Facility	$20
SR 11	SR 905	Mexico	---	4F	$190
SR 52	SR 125	SR 67	---	4F	$290
SR 56	Camino Ruiz	Carmel Country	---	4F	$130
SR 125**	SR 905	San Miguel Rd.	---	4T	$400

Highway System Completion (*continued*)					Cost ($ millions)
Freeway	**From**	**To**	**Existing**	**Improvements**	
SR 125	San Miguel Rd.	SR 54	---	4F	$140
SR 125	Jamacha Road	SR 94	---	6F	$170
SR 125	Navajo Road	Grossmont	---	6F	$70
SR 905	I-805	Mexico	---	6F	$290
				Subtotal	$1,700
Highway Widening, Arterials, and Freeway Interchanges					
Routes	**From**	**To**	**Existing**	**Improvements**	
I-5	SR 54	Sea World Drive	8F	Access Improvements	$170
I-5	I-805	SR 56	10F	14F	$190
SR 56	I-5	I-15	4F	6F	$40
SR 75/SR 282***	Glorietta Blvd.	Alameda Blvd.	6C	6C + 2TU	$6
SR 76	Melrose Drive	Mission Road	2C	4C	$100
SR 125**	Telegraph Cyn.	San Miguel Road	4T	6T	$30
SR 125	San Miguel Rd.	SR 54	4F	6F	$30
Regionally Significant Arterials and Local Freeway Access Interchanges					$350
				Subtotal	$916
Freeway Connectors					
Freeway	**Intersecting Freeway**			**Movement**	
I-5	SR 56			West to North & South to East	$140
I-5	SR 78			West to South & South to East	$150
SR 94	SR 125			West to North & South to East	$110
				Subtotal	$400
				Total	**$10,876**

KEY:

C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

* funding from state/federal discretionary transportation funding sources
** privately funded
*** funding from federal discretionary defense funding sources

San Diego Region
MAP AREA
Camp Pendleton
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Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
El Cajon
La Mesa
Lemon Grove
Santee
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
PACIFIC OCEAN
UNITED STATES
MEXICO
2C
4C
4E
8F
6F
8F+4ML
8F+4ML/MB
14F+4ML
6F+2HOV
8F+2HOV
6F+2ML (Reversible)
10F
4F
6T
4T
Figure A.2
2030 REVENUE CONSTRAINED HIGHWAY NETWORK
April 2003
Managed/HOV Lanes
General Purpose Lanes
Access Improvements
Freeway Connectors
HOV Connectors
C = Conventional Highway
E = Expressway
F = Freeway
HOV = High Occupancy Vehicle
MB = Movable Barrier
ML = Managed Lanes
T = Toll Road
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

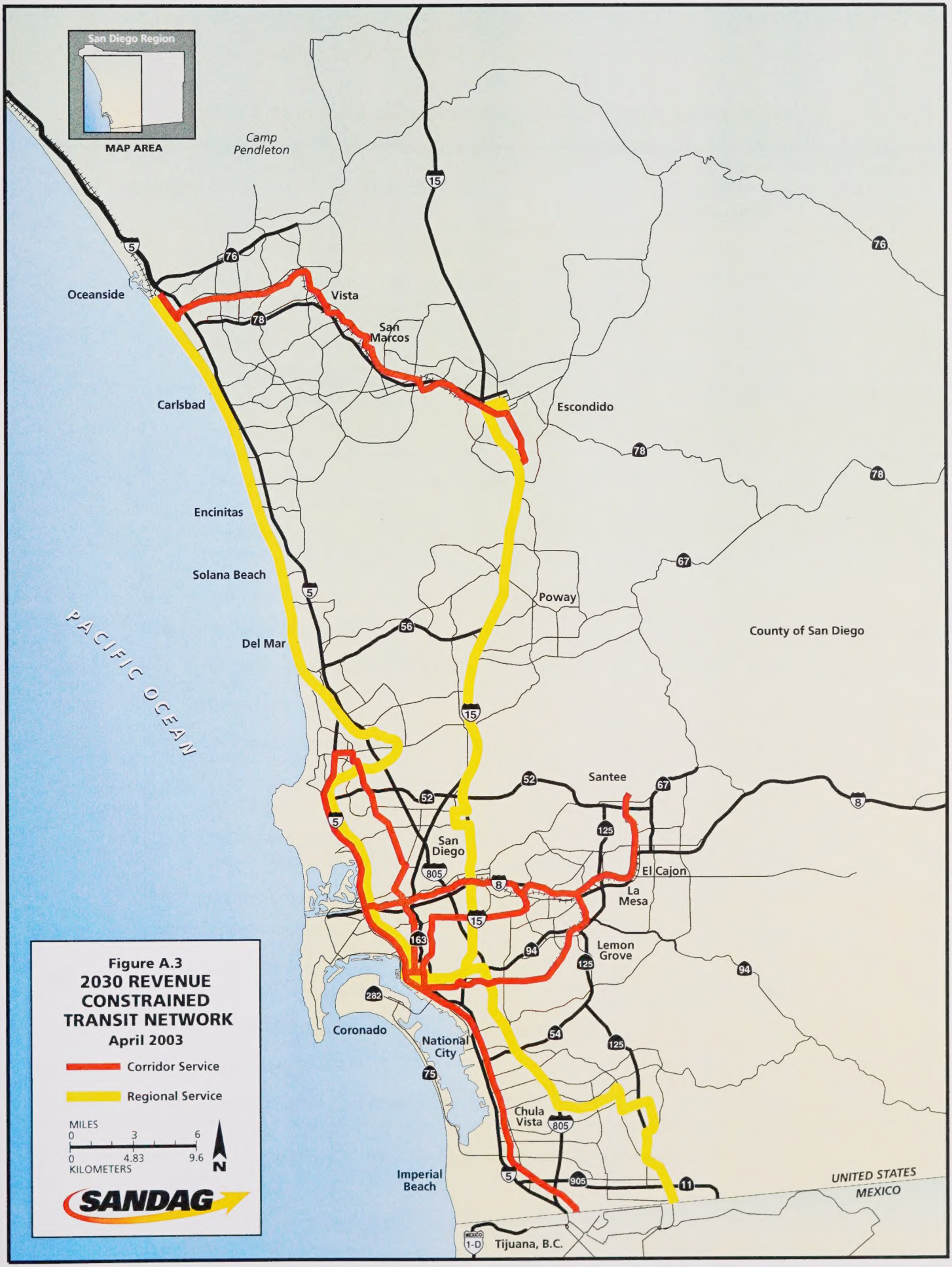
TABLE A.2—PHASED HIGHWAY PROJECTS – REVENUE CONSTRAINED PLAN [1]

YEAR BUILT BY	FREEWAY	FROM	TO	EXISTING	IMPROVEMENT	($ MILLIONS) COST	CUMULATIVE COST
2010	I-5/I-805	Port of Entry – Mexico		--	Inspection Facility	$20	$20
2010	I-5	I-805	SR 56	10F	14F	$190	$210
2010	I-15	SR 163	SR 56	8F + ML (R)	8F + 4ML/MB	$200	$410
2010	I-15	SR 56	Centre City Pkwy	8F	8F + 4ML/MB	$340	$750
2010	SR 56	Camino Ruiz	Carmel Country	--	4F	$130	$880
2010	SR 125	SR 905	San Miguel Road	--	4T	$400	$1,280
2010	SR 125	San Miguel Road	SR 54	--	4F	$140	$1,420
2010	SR 125	Jamacha Road	SR 94	--	6F	$170	$1,590
2010	SR 125	Navajo Road	Grossmont	--	6F	$70	$1,660
2010	SR 75/SR 282	Glorietta Blvd.	Alameda Blvd.	6C	6C+2TU (Preliminary Engineering Only)	$6	$1,666
2020	I-5	SR 54	Sea World Drive	8F	Access Improvements	$170	$1,836
2020	I-5/SR 56	West to North & South to East		--	Freeway Connectors	$140	$1,976
2020	I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120	$2,096
2020	SR 52	SR 125	SR 67	--	4F	$290	$2,386
2020	SR 905	I-805	Mexico	--	6F	$290	$2,676
2020	I-5	I-805	SR 56	14F	14F + 4ML	$30	$2,706
2020	I-5/I-805	North to North & South to South		--	HOV Connectors	$180	$2,886
2020	I-5	SR 56	Encinitas Blvd.	8F	8F + 4ML	$400	$3,286
2020	SR 54/SR 125	I-805	SR 94	6F/4F+2HOV	6F + 2HOV	$90	$3,376
2020	SR 56	I-5	I-15	4F	6F	$40	$3,416
2020	SR 76	Melrose Drive	Mission Road	2C	4C	$100	$3,516

YEAR BUILT BY	FREEWAY	FROM	TO	EXISTING	IMPROVEMENT	($ MILLIONS) COST	CUMULATIVE COST
2020	SR 94/SR 125	West to North & South to East		--	Freeway Connectors	$110	$3,816
2020	SR 241	Orange County	I-5	--	4T	$300	$3,926
2020	I-805	I-8	I-5	8F	8F + 4ML	$380	$4,306
2030	I-5	Encinitas Blvd.	Vandegrift Blvd.	8F	8F + 4ML	$350	$4,656
2030	I-5/SR 78	West to South & South to East		--	Freeway Connectors	$150	$4,806
2030	SR 11	SR 905	Mexico	--	4F	$190	$4,996
2030	I-15/SR 94	South to West & East to North		--	HOV Connectors	$150	$5,146
2030	I-15	SR 94	SR 163	6F/8F	8F + 2HOV	$200	$5,346
2030	SR 52	I-805	I-15	6F	6F + 2HOV	$70	$5,416
2030	SR 52	I-15	SR 125	4F	6F + 2ML (R)	$170	$5,586
2030	SR 94	I-5	I-15	8F	8F + 2HOV	$80	$5,666
2030	SR 125	Telegraph Cyn.	San Miguel Road	4T	6T	$30	$5,696
2030	SR 125	San Miguel Road	SR 54	4F	6F	$30	$5,726
2030	SR 241	Orange County	I-5	4T	4T + 2HOV	$120	$5,846
2030	I-805	SR 905	SR 54	8F	8F + 2HOV	$150	$5,996
2030	I-805	SR 54	I-8	8F	8F + 4ML	$450	$6,446
2030	I-805	Mission Valley Viaduct		8F	8F + 4ML	$250	$6,696

[1] These projects are included in the 2010, 2020, and 2030 analysis years for air quality assessment.

KEY:
C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)


San Diego Region
MAP AREA
Camp Pendleton
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County of San Diego
PACIFIC OCEAN
Santee
San Diego
El Cajon
La Mesa
Lemon Grove
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure A.3
2030 REVENUE CONSTRAINED TRANSIT NETWORK
April 2003
Corridor Service
Regional Service
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

TABLE A.3—PHASED TRANSIT SERVICES – REVENUE CONSTRAINED PLAN [1]

YEAR [1]	ROUTE	DESCRIPTION	PEAK HEADWAY (MINUTES)	OFF-PEAK HEADWAY (MINUTES)
2010	611	El Cajon Boulevard to Centre City	10	-
2010	610	Escondido to Centre City via I-15/SR 94 (Limited Shoulder Lane)	10	-
2010	570	Mid-Coast to Balboa	15	30
2010	510	Extension of existing Blue Line trolley via Mission Valley East	7.5 (current)	15 (current)
2010	399	Increase in Oceanside to Escondido Rail - North County Fair extension (BRT)	30 (current rail) 15 (BRT)	30 (current rail) 30 (BRT)
2010	628	Centre City to Otay Mesa via SR 94/I-805 (Limited Shoulder Use)	10	-
2020	399	Increase in Oceanside to Escondido Rail - North County Fair (BRT)	15	30
2020	621	Centre City to Fashion Valley via Hillcrest/Genesee	10	10
2020	398	Increase in Coaster	20	120 (current)
2020	611	El Cajon Boulevard to Centre City	10	30
2020	570	Mid-Coast to UTC	15	30
2020	510	Increase in Existing Blue Line Trolley	7.5 (current)	7.5
2030	610	Escondido to SDIA via I-15/SR 94 (Limited Shoulder Lane)	10	30
2030	399	Increase in Oceanside to Escondido Rail - North County Fair (Rail)	15	30
2030	398	Increase in Coaster	20	60
2030	611	El Cajon Boulevard	10	10
2030	621	Centre City to Fashion Valley via Hillcrest/Genesee Avenue	10	10
2030	621	Centre City to UTC via Hillcrest/Genesee Avenue	10	30
2030	570	Mid-Coast to UTC	7.5	15
2030	628	Centre City to Otay Mesa via SR 94/I-805	10	10

[1] These projects are included in the 2010, 2020, and 2030 analysis years for air quality assessment.

TABLE A.4—MAJOR TRANSIT EXPENDITURES – REVENUE CONSTRAINED PLAN [1]
($ MILLIONS)

PROJECT CATEGORIES	2002-2010	2011-2020	2021-2030	TOTAL
Major New Capital Facilities	*$1,885*	*$825*	*$1,120*	*$3,830*
Mission Valley East Extension	$450	$0	$0	$450
Oceanside to Escondido Rail	$350	$0	$0	$350
Sorrento Mesa Transitway	$0	$0	$0	$0
Kearny Mesa Transitway	$0	$0	$0	$0
Mid-Coast Light Rail	$140	$450	$0	$590
Oceanside to Escondido Rail Doubletracking/ North County Fair Extension	$80	$0	$90	$170
Coastal Rail Doubletracking & Other Improvements *	$138	$138	$144	$420
Coastal Rail Tunnel (Del Mar only) *	$0	$0	$360	$360
Regional Light Rail Grade Separations	$100	$0	$0	$100
Improved/New Major Transit Stations and Centers	$334	$104	$32	$470
Direct Access Ramps to Managed/HOV Lanes	$65	$0	$415	$480
Early Action Project Funding	$80	$0	$0	$80
Vehicles for New Services	$110	$113	$37	$260
Arterial Transit Priority Improvements	$38	$20	$42	$100
Operating Subsidies	*$1,105*	*$1,380*	*$1,580*	*$4,065*
Existing Service	$1,035	$1,150	$1,150	$3,335
New/Improved Service	$70	$230	$430	$730
Rehab./Replacement/Miscellaneous Capital	*$445*	*$765*	*$350*	*$1,560*
TOTAL	**$3,435**	**$2,970**	**$3,050**	**$9,455**

[1] These projects are included in the 2010, 2020, and 2030 analysis years for air quality assessment

* Funding from state/federal discretionary transportation sources

TABLE A.5—MAJOR CAPITAL IMPROVEMENTS – REASONABLY EXPECTED REVENUE SCENARIO

Transit Facilities	**Cost ($ millions)**
Mission Valley East Trolley Extension	$450
Oceanside to Escondido Rail	$350
Sorrento Mesa Transitway	$500
Kearny Mesa Transitway	$300
Mid-Coast Light Rail	$590
Oceanside-Escondido Rail Double Tracking and North County Fair Extension	$170
Coastal Rail Double Tracking and Other Improvements*	$420
Coastal Rail Tunnels at University City and Del Mar*	$1,250
Regional Light Rail Grade Separations	$200
Early Action Project Funding	$80
Improved/New Major Transit Stations and Centers	$1,670
Direct Access Ramps to Managed/HOV Lanes	$1,080
Vehicles for New Regional and Corridor Transit Services	$550
Arterial Transit Priority Improvements	$890
Subtotal	$8,500

HOV and Managed Lane Facilities					
Freeway	**From**	**To**	**Existing**	**Improvements**	
I-5	SR 905	SR 54	8F	8F + 2 HOV	$130
I-5	SR 54	I-8	8F	8F + 2 HOV	$900
I-5	I-8	I-805	8F	10F + 2HOV	$440
I-5	I-805	SR 56	14F	14F + 4ML	$30
I-5	SR 56	Leucadia Blvd.	8F	10F + 4ML	$530
I-5	Leucadia Blvd.	Vandegrift Blvd.	8F	8F + 4ML	$370
I-8	SR 125	SR 67	8F	8F + 2HOV	$130
I-8	SR 67	2nd Street	6F	6F + 2HOV	$40
I-15	SR 94	SR 163	6F/8F	8F + 2HOV	$200
I-15	SR 163	SR 56	8F + 2ML(R)	8F + 4ML/MB	$200
I-15	SR 56	Centre City Pkwy.	8F	8F + 4ML/MB	$340
I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120
SR 52	I-805	I-15	6F	6F + 2HOV	$70
SR 52	I-15	SR 125	4F	6F + 2ML (R)	$170
SR 54/SR 125	I-5	SR 94	6F/4F+2HOV	6F + 2HOV	$120
SR 56	I-5	I-15	4F	6F + 2HOV	$180
SR 78	I-5	I-15	6F	6F + 2HOV	$500
SR 94/SR 125	I-5	I-8	8F/6F	8F + 2HOV	$500
SR 241**	Orange County	I-5	---	4T + 2HOV	$420
I-805	SR 905	SR 54	8F	8F + 4ML	$300
I-805	SR 54	I-8	8F	8F + 4ML	$450
I-805	Mission Valley Viaduct		8F	8F + 4ML	$250
I-805	I-8	I-5	8F	8F + 4ML	$380
				Subtotal	$6,770

HOV Connectors					Cost ($ millions)
Freeway	**Intersecting Freeway**		**Movement**		
I-5	I-805		North to North & South to South		$180
I-15	SR 78		East to South & North to West		$200
I-15	SR 94		South to West & East to North		$150
I-805	SR 52		West to North & South to East		$150
				Subtotal	$680
Highway System Completion					
Freeway	**From**	**To**	**Existing**	**Improvements**	
I-5/I-805	Port of Entry – Mexico		---	Inspection Facility	$20
SR 11	SR 905	Mexico	---	4F	$190
SR 52	SR 125	SR 67	---	4F	$290
SR 56	Camino Ruiz	Carmel Country	---	4F	$130
SR 125**	SR 905	San Miguel Rd.	---	4T	$400
SR 125	San Miguel Rd.	SR 54	---	4F	$140
SR 125	Jamacha Road	SR 94	---	6F	$170
SR 125	Navajo Road	Grossmont	---	6F	$70
SR 905	I-805	Mexico	---	6F	$290
				Subtotal	$1,700
Highway Widening, Arterials, and Freeway Interchanges					
Routes	**From**	**To**	**Existing**	**Improvements**	
I-5	I-805	SR 56	10F	14F	$190
I-8	2nd Street	Los Coches	4F	6F	$30
SR 52	I-5	I-805	4F	6F	$80
SR 67	Mapleview St.	Dye Road	2C	4C	$240
SR 75/SR 282***	Glorietta Blvd.	Alameda Blvd.	6C	6C + 2TU	$300
SR 76	Melrose Dr.	I-15	2C	4C	$180
SR 94	SR 125	Jamacha Road	4F/4C	6F/6C	$70
SR 94	Jamacha Road	Steele Canyon Rd.	2C	4C	$20
SR 125**	SR 905	San Miguel Road	4T	8T	$110
SR 125	San Miguel Rd.	SR 54	4F	8F	$60
Regionally Significant Arterials and Local Freeway Access Interchanges					$500
				Subtotal	$1,780
Freeway Connectors					
Freeway	**Intersecting Freeway**		**Movement**		
I-5	I-8		East to North & South to West		$200
I-5	SR 56		West to North & South to East		$140
I-5	SR 78		West to South & South to East		$150
SR 94	SR 125		West to North & South to East		$110
				Subtotal	$600
				Total	**$20,030**

KEY:

C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

* funding from state/federal discretionary transportation funding sources
** privately funded
*** funding from federal discretionary defense funding sources

TABLE A.6—PHASED HIGHWAY PROJECTS - REASONABLY EXPECTED REVENUE SCENARIO

YEAR BUILT BY	FREEWAY	FROM	TO	EXISTING	IMPROVEMENTS	($ MILLIONS) COST	($ MILLIONS) CUMULATIVE COST
2010	I-5/I-805	Port of Entry–Mexico			Inspection Facility	$20	$20
2010	I-5	I-805	SR 56	10F	14F	$190	$210
2010	I-5/SR 56	West to North and South to East		—	Freeway Connectors	$140	$350
2010	SR 11	SR 905	Mexico	---	4F	$190	$540
2010	I-15	SR 163	SR 56	8F + 2ML (R)	8F + 4ML/MB	$200	$740
2010	I-15	SR 56	Centre City Pkwy.	8F	8F + 4ML/MB	$340	$1,080
2010	I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120	$1,200
2010	SR 52	SR 125	SR 67	---	4F	$290	$1,490
2010	SR 54/SR 125	I-5	SR 94	6F/4F + 2HOV	6F + 2HOV	$120	$1,610
2010	SR 56	Camino Ruiz	Carmel Country	---	4F	$130	$1,740
2010	SR 76	Melrose Drive	Mission Road	2C	4C	$100	$1,840
2010	SR 125	SR 905	San Miguel Road	---	4T	$400	$2,240
2010	SR 125	San Miguel Road	SR 54	---	4F	$140	$2,380
2010	SR 125	Navajo Road	Grossmont Drive	---	6F	$70	$2,450
2010	SR 125	Jamacha Road	SR 94	---	6F	$170	$2,620
2010	SR 905	I-805	Mexico	---	6F	$290	$2,910
2020	I-5	SR 54	SR 163	8F	8F + 2HOV	$500	$3,410
2020	I-5/I-805	North to North & South to South		---	HOV Connectors	$180	$3,590
2020	I-5	I-805	SR 56	14F	14F + 4ML	$30	$3,620

YEAR BUILT BY	FREEWAY	FROM	TO	EXISTING	IMPROVEMENTS	($ MILLIONS)	
						COST	CUMULATIVE COST
2020	I-5	SR 56	Leucadia Blvd.	8F	10F + 4ML	$530	$4,150
2020	SR 56	I-5	I-15	4F	6F + 2HOV	$180	$4,330
2020	SR 76	Mission Road	I-15	2C	4C	$80	$4,410
2020	SR 94/SR 125	West to North & South to East		---	Freeway Connectors	$110	$4,520
2020	I-5	SR 905	SR 54	8F	8F + 2 HOV	$130	$4,650
2020	I-5	SR 163	I-8	8F	8F + 2HOV	$400	$5,050
2020	I-5	I-8	I-805	8F	10F + 2HOV	$440	$5,490
2020	I-5/SR 78	West to South & South to East		---	Freeway Connectors	$150	$5,640
2020	I-805	SR 905	SR 54	8F	8F + 4ML	$300	$5,940
2020	I-805	SR 54	I-8	8F	8F + 4ML	$450	$6,390
2020	I-805	Mission Valley Viaduct		8F	8F + 4ML	$250	$6,640
2020	I-805	I-8	I-5	8F	8F + 4ML	$380	$7,020
2030	I-5/I-8	East to North & South to West		---	Freeway Connectors	$200	$7,220
2030	I-5	Leucadia Blvd.	Vandegrift Blvd.	8F	8F + 4ML	$370	$7,590
2030	I-8	SR 125	SR 67	8F	8F + 2HOV	$130	$7,720
2030	I-8	SR 67	2nd Street	6F	6F + 2HOV	$40	$7,760
2030	I-8	2nd Street	Los Coches Road	4F	6F	$30	$7,790
2030	I-15/SR 94	South to West & East to North		---	HOV Connectors	$150	$7,940
2030	I-15	SR 94	SR 163	6F/8F	8F + 2HOV	$200	$8,140
2030	I-15/SR 78	East to South & North to West		---	HOV Connectors	$200	$8,340
2030	SR 52	I-5	I-805	4F	6F	$80	$8,420

YEAR BUILT BY	FREEWAY	FROM	TO	EXISTING	IMPROVEMENTS	($ MILLIONS)	
						COST	CUMULATIVE COST
2030	SR 52	I-805	I-15	6F	6F + 2HOV	$70	$8,490
2030	SR 52	I-15	SR 125	4F	6F + 2ML (R)	$170	$8,660
2030	SR 67	Mapleview Street	Dye Road	2C	4C	$240	$8,900
2030	SR 75/SR 282	Glorietta Blvd.	Alameda Blvd.	6C	6C + 2TL	$300	$9,200
2030	SR 78	I-5	I-15	6F	6F + 2HOV	$500	$9,700
2030	SR 94/SR 125	I-5	I-8	8F/6F	8F + 2HOV	$500	$10,200
2030	SR 94	SR 125	Jamacha Road	4F/4C	6F/6C	$70	$10,270
2030	SR 94	Jamacha Road	Steele Canyon Road	2C	4C	$20	$10,290
2030	SR 125	SR 905	San Miguel Road	4T	8T	$110	$10,400
2030	SR 125	San Miguel Road	SR 54	4F	8F	$60	$10,460
2030	SR 241	Orange County	I-5	---	4T + 2HOV	$420	$10,880
2030	I-805/SR 52	West to North & South to East		---	HOV Connectors	$150	$11,030

KEY:

C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel

T = Toll Road
MB = Movable Barrier

ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

TABLE A.7—PHASED TRANSIT SERVICES - REASONABLY EXPECTED REVENUE SCENARIO

YEAR	ROUTE	DESCRIPTION	PEAK HEADWAY (MINUTES)	OFF-PEAK HEADWAY (MINUTES)
2010	510	Increase in Blue Line Trolley and extension via Mission Valley East	7.5	10
2010	520	Increase in Orange Line Trolley	7.5	15/30
2010	611	El Cajon Boulevard to Centre City	5	10
2010	470	Temecula to Sorrento Mesa via Mira Mesa	30	-
2010	570	Mid-Coast to Balboa (w/ enhanced BRT to UTC)	7.5	15
2010	610	Escondido to Centre City via I-15/SR 94 (Limited Shoulder Lane)	10	-
2010	612	Old Town to Balboa via Mission Blvd	10	30
2010	680	San Ysidro to Sorrento Mesa via I-805/I-15 (Limited Shoulder Lane)	10	-
2010	399	Increase in Oceanside to Escondido Rail – North County Fair (BRT)	15	30
2010	628	Centre City to Otay Mesa via SR 94/I-805 (Limited Shoulder Lane)	5	10
2020	471	Palomar Airport Road	10	10
2020	610	Escondido to Centre City via I-15/SR 94 (Limited Shoulder Lane)	10	30
2020	472	NE Oceanside to UTC via El Camino Real/I-5	10	10
2020	619	32nd St to Clairemont Mesa	5	10
2020	660	El Cajon to UTC via SR 52	10	-
2020	398	Increase in Coaster	20	current
2020	570	Mid-Coast to UTC	7.5	15
2020	470	Temecula to Sorrento Mesa via Mira Mesa	15-30*	30-60*
2020	510	Increase in Blue Line Trolley	7.5	7.5
2020	621	Centre City to Sorrento Mesa via Hillcrest/Genesee Avenue	5	10
2020	680	San Ysidro to Sorrento Mesa via I-805/I-15 (Limited Shoulder Lane)	5	10
2030	610	Escondido to Centre City/SDIA via I-15/SR 94 (Transitway)	5	10
2030	612	Old Town to Balboa via Mission Blvd	10	10
2030	398	Increase in Coaster	20	60
2030	399	Increase in Oceanside to Escondido Rail - North County Fair (Rail)	10	10
2030	570	Mid-Coast to Sorrento Mesa (Transitway)	7.5	15
2030	621	Coronado to Sorrento Mesa via Hillcrest/Genesee (Transitway)	5	10
2030	627	H Street to SW College	30	30
2030	628	Centre City to Otay Mesa via SR 94/I-805	5	10
2030	680	San Ysidro to Sorrento Mesa via I-805/I-15 (Transitway)	5	10

* Peak headways at 15 minutes to Escondido and 30 minutes to Temecula; off-peak headways at 30 minutes to Escondido and 60 minutes to Temecula.

TABLE A.8—MAJOR TRANSIT EXPENDITURES – REASONABLY EXPECTED REVENUE SCENARIO
($ MILLIONS)

PROJECT CATEGORIES	2002-2010	2011-2020	2021-2030	TOTAL
Major New Capital Facilities	*$2,535*	*$2,285*	*$3,680*	*$8,500*
Mission Valley East Extension	$450	$0	$0	$450
Oceanside to Escondido Rail	$350	$0	$0	$350
Sorrento Mesa Transitway	$0	$0	$500	$500
Kearny Mesa Transitway	$0	$0	$300	$300
Mid-Coast Light Rail	$140	$450	$0	$590
Oceanside to Escondido Rail Doubletracking/ NC Fair Extension	$80	$0	$90	$170
Coastal Rail Doubletracking and Other Improvements *	$136	$220	$64	$420
Coastal Rail Tunnels *	$0	$0	$1,250	$1,250
Regional Light Rail Grade Separations	$100	$100	$0	$200
Improved/New Major Transit Stations and Centers	$453	$670	$547	$1,670
Direct Access Ramps to Managed/HOV Lanes	$330	$410	$340	$1,080
Early Action Project Funding	$80	$0	$0	$80
Vehicles for New Services	$225	$179	$146	$550
Arterial Transit Priority Improvements	$191	$256	$443	$890
Operating Subsidies	*$1,265*	*$1,795*	*$2,415*	*$5,475*
Existing Service	$1,080	$1,308	$1,490	$3,878
New/Improved Service	$185	$487	$925	$1,597
Rehab./Replacement/ Miscellaneous Capital	*$600*	*$870*	*$510*	*$1,980*
TOTAL	**$4,400**	**$4,950**	**$6,605**	**$15,955**

* Funding from state/federal discretionary transportation sources

TABLE A.9—MAJOR CAPITAL IMPROVEMENTS – DIFFERENCES BETWEEN SCENARIOS

Differences between Reasonably Expected Revenue (Tables 6.2 and A.5) and Revenue Constrained Plan (Table A.1) scenarios are in ~~strikeout~~ and shaded.

Transit Facilities	Cost ($ millions)
Mission Valley East Trolley Extension	$450
Oceanside to Escondido Rail	$350
~~Sorrento Mesa Transitway~~	$0 ~~$500~~
~~Kearny Mesa Transitway~~	$0 ~~$300~~
Mid-Coast Light Rail	$590
Oceanside-Escondido Rail Double Tracking and North County Fair Extension	$170
Coastal Rail Double Tracking and Other Improvements*	$420
Coastal Rail Tunnels at ~~University City and~~ Del Mar*	$360 ~~$1,250~~
Regional Light Rail Grade Separations	$100 ~~$200~~
Early Action Project Funding	$80
Improved/New Major Transit Stations and Centers	$470 ~~$1,670~~
Direct Access Ramps to Managed/HOV Lanes	$480 ~~$1,080~~
Vehicles for New Regional and Corridor Transit Services	$260 ~~$550~~
Arterial Transit Priority Improvements	$100 ~~$890~~
Subtotal	$3,830 ~~$8,500~~

HOV and Managed Lane Facilities

Freeway	From	To	Existing	Improvements	
~~I-5~~	~~SR-905~~	~~SR-54~~	~~8F~~	~~8F + 2 HOV~~	$0 ~~$130~~
~~I-5~~	~~SR-54~~	~~I-8~~	~~8F~~	~~8F + 2 HOV~~	$0 ~~$900~~
~~I-5~~	~~I-8~~	~~I-805~~	~~8F~~	~~10F + 2HOV~~	$0 ~~$440~~
I-5	I-805	SR 56	14F	14F + 4ML	$30
I-5	SR 56	Leucadia Blvd.	8F	~~10F + 4ML~~ 8F + 4ML	$380 ~~$530~~
I-5	Leucadia Blvd.	Vandergrift Blvd.	8F	8F + 4ML	$370
~~I-8~~	~~SR-125~~	~~SR-67~~	~~8F~~	~~8F + 2HOV~~	$0 ~~$130~~
~~I-8~~	~~SR-67~~	~~2nd Street~~	~~6F~~	~~6F + 2HOV~~	$0 ~~$40~~
I-15	SR 94	SR 163	6F/8F	8F + 2HOV	$200
I-15	SR 163	SR 56	8F + 2ML (R)	8F + 4ML/MB	$200
I-15	SR 56	Centre City Pkwy.	8F	8F + 4ML/MB	$340
I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120
SR 52	I-805	I-15	6F	6F + 2HOV	$70
SR 52	I-15	SR 125	4F	6F + 2ML(R)	$170
SR 54/SR 125	~~I-5~~ I-805	SR 94	6F/4F+2HOV	6F + 2HOV	$90 ~~$120~~
~~SR-56~~	~~I-5~~	~~I-15~~	~~4F~~	~~6F + 2HOV~~	$0 ~~$180~~
~~SR-78~~	~~I-5~~	~~I-15~~	~~6F~~	~~6F + 2HOV~~	$0 ~~$500~~
SR 94/~~SR-125~~	I-5	~~I-8~~ I-15	8F/~~6F~~	8F + 2HOV	$80 ~~$500~~
SR 241**	Orange County	I-5	---	4T + 2HOV	$420
I-805	SR 905	SR 54	8F	~~8F + 4ML~~ 8F + 2HOV	$150 ~~$300~~
I-805	SR 54	I-8	8F	8F + 4ML	$450
I-805	Mission Valley Viaduct		8F	8F + 4ML	$250
I-805	I-8	I-5	8F	8F + 4ML	$380
				Subtotal	$3,700 ~~$6,770~~

HOV Connectors			Cost ($ millions)
Freeway	**Intersecting Freeway**	**Movement**	
I-5	I-805	North to North & South to South	$180
~~I-15~~	~~SR-78~~	~~East to South & North to West~~	$0 ~~$200~~
I-15	SR 94	South to West & East to North	$150
~~I-805~~	~~SR-52~~	~~West to North & South to East~~	$0 ~~$150~~
		Subtotal	$330 ~~$680~~

Highway System Completion					
Freeway	**From**	**To**	**Existing**	**Improvements**	
I-5/I-805	Port of Entry – Mexico		---	Inspection Facility	$20
SR 11	SR 905	Mexico	---	4F	$190
SR 52	SR 125	SR 67	---	4F	$290
SR 56	Camino Ruiz	Carmel Country	---	4F	$130
SR 125**	SR 905	San Miguel Rd.	---	4T	$400
SR 125	San Miguel Rd.	SR 54	---	4F	$140
SR 125	Navajo Road	Grossmont	---	6F	$70
SR 125	Jamacha Road	SR 94	---	6F	$170
SR 905	I-805	Mexico	---	6F	$290
				Subtotal	$1,700

Highway Widening, Arterials, and Freeway Interchanges					
Routes	**From**	**To**	**Existing**	**Improvements**	
I-5	SR 54	Sea World Dr.	8F	Access Improvements	$170
I-5	I-805	SR 56	10F	14F	$190
I-8	2nd Street	Los Coches	4F	6F	$0 ~~$30~~
SR 52	I-5	I-805	4F	6F	$0 ~~$80~~
SR 56	I-5	I-15	4F	6F	$40
SR 67	Mapleview St.	Dye Road	2C	4C	$0 ~~$240~~
SR 75/SR 282***	Glorietta Blvd.	Alameda Blvd.	6C	6C + 2TU	$6 ~~$300~~
SR 76	Melrose Dr.	~~I-15~~ Mission Rd.	2C	4C	$100 ~~$180~~
SR 94	SR 125	Jamacha Road	4F/4C	6F/6C	$0 ~~$70~~
SR 94	Jamacha Road	Steele Cyn. Rd.	2C	4C	$0 ~~$20~~
SR 125**	~~SR-905~~ Telegraph Cyn.	San Miguel Rd.	4T	~~8T~~ 6T	$30 ~~$110~~
SR 125	San Miguel Rd.	SR 54	4F	~~8F~~ 6F	$30 ~~$60~~
Regionally Significant Arterials and Local Access Freeway Interchanges					$350 ~~$500~~
				Subtotal	$916 ~~$1,780~~

Freeway Connectors			
Freeway	**Intersecting Freeway**	**Movement**	
~~I-5~~	~~I-8~~	~~East to North & South to West~~	$0 ~~$200~~
I-5	SR 56	West to North & South to East	$140
I-5	SR 78	West to South & South to East	$150
SR 94	SR 125	West to North & South to East	$110
		Subtotal	$400 ~~$600~~
		Total	**$10,876 ~~$20,030~~**

KEY:

C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

* funding from state/federal discretionary transportation funding sources
** privately funded
*** funding from federal discretionary defense funding sources

San Diego Region
MAP AREA
Figure A.4
2030
UNCONSTRAINED
HIGHWAY NETWORK
April 2003
Managed/HOV Lanes
General Purpose Lanes
Freeway Connectors
HOV Connectors
Freeway & HOV Connectors
C = Conventional Highway
E = Expressway
F = Freeway
HOV = High Occupancy Vehicle
MB = Movable Barrier
ML = Managed Lanes
T = Toll Road
TU = Tunnel
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
Santee
El Cajon
La Mesa
Lemon Grove
National City
Chula Vista
Imperial Beach
Coronado
San Diego
PACIFIC OCEAN
UNITED STATES
MEXICO
Tijuana, B.C.
8F+2HOV
2C
4C
6C
8F+4ML
6E
6F+2HOV
10F+4ML
8F+4ML/MB
14F+4ML
6F+3ML/MB
6F
4F
8T
10F+2HOV
6C+2TU

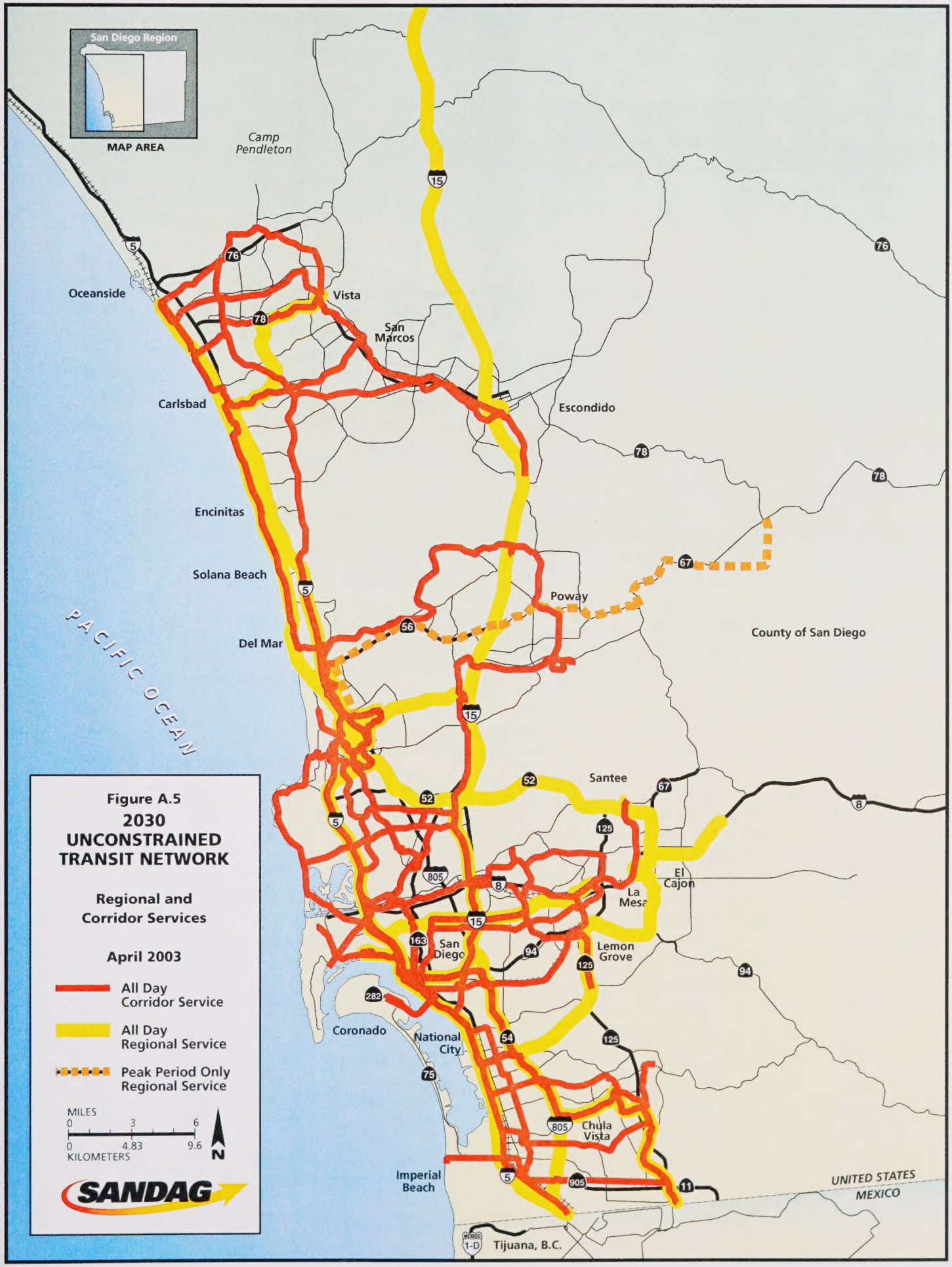

San Diego Region
MAP AREA
Camp Pendleton
Oceanside
Vista
San Marcos
Carlsbad
Escondido
Encinitas
Solana Beach
Del Mar
Poway
County of San Diego
PACIFIC OCEAN
Santee
El Cajon
La Mesa
Lemon Grove
San Diego
Coronado
National City
Chula Vista
Imperial Beach
Tijuana, B.C.
UNITED STATES
MEXICO
Figure A.5
2030
UNCONSTRAINED
TRANSIT NETWORK
Regional and
Corridor Services
April 2003
All Day
Corridor Service
All Day
Regional Service
Peak Period Only
Regional Service
MILES
0 3 6
0 4.83 9.6
KILOMETERS
N
SANDAG

TABLE A.10—MAJOR CAPITAL IMPROVEMENTS – UNCONSTRAINED REVENUE SCENARIO

Transit Facilities	**Cost ($ millions)**
Mission Valley East Trolley Extension	$450
Oceanside to Escondido Rail	$350
Sorrento Mesa Transitway	$500
Kearny Mesa Transitway	$300
Mid-Coast Light Rail	$590
Oceanside-Escondido Rail Double Tracking and North County Fair Extension	$170
Coastal Rail Double Tracking and Other Improvements*	$420
Coastal Rail Tunnels at University City and Del Mar*	$1,250
Regional Light Rail Grade Separations	$400
Early Action Project Funding	$100
Improved/New Major Transit Stations and Centers	$2,920
Direct Access Ramps to Managed/HOV Lanes	$1,840
Vehicles for New Regional and Corridor Transit Services	$1,030
Arterial Transit Priority Improvements	$4,350
Subtotal	$14,670

HOV and Managed Lane Facilities					**Cost ($ millions)**
Freeway	**From**	**To**	**Existing**	**Improvement**	
I-5	SR 905	SR 54	8F	8F + 2HOV	$130
I-5	SR 54	I-15	8F	10F + 2HOV	$250
I-5	I-15	I-8	8F	8F + 2HOV	$750
I-5	I-8	I-805	8F	10F + 2HOV	$440
I-5	I-805	SR 56	16F	14F + 4ML	$30
I-5	SR 56	Palomar Airport Rd.	8F	10F + 4ML	$860
I-5	Palomar Airport Rd.	SR 76	8F	8F + 4ML	$250
I-5	SR 76	Orange County	8F	8F + 4ML	$340
I-8	I-5	I-15	8F	8F + 2HOV	$1,200
I-8	I-15	College Avenue	10F	10F + 2HOV	$800
I-8	College Avenue	SR 125	8F	8F + 2HOV	$900
I-8	SR 125	SR 67	8F	8F + 2HOV	$90
I-8	SR 67	Los Coches	6F	6F + 2HOV	$70
I-15	I-5	SR 163	6F/8F	8F + 2HOV	$470
I-15	SR 163	SR 56	8F + 2ML(R)	8F + 4ML/MB	$200
I-15	SR 56	Centre City Pkwy.	8F	8F + 4ML/MB	$340
I-15	Centre City Pkwy.	SR 78	8F	8F + 4ML	$120
I-15	SR 78	Riverside County	8F	8F + 2HOV	$300
SR 52	I-5	I-805	4F	6F + 2HOV	$190
SR 52	I-805	I-15	6F	8F + 2HOV	$200
SR 52	I-15	SR 125	4F	6F + 3ML/MB	$240
SR 54	I-5	SR 125	6F/4F+2HOV	8F + 2HOV	$100
SR 56	I-5	I-15	4F	6F + 2HOV	$180
SR 78	I-5	I-15	6F	6F + 2HOV	$700
SR 94	I-5	I-805	8F	8F + 2HOV	$150
SR 94	I-805	College Avenue	8F	10F + 2HOV	$220
SR 94	College Avenue	SR 125	8F	8F + 2HOV	$140
SR 94	SR 125	Avocado Blvd.	4F	6F + 2HOV	$100
SR 125	SR 54	SR 94	8F	8F + 2HOV	$100

HOV and Managed Lane Facilities (continued)					Cost ($ millions)
SR 125	SR 94	I-8	8F	10F + 2HOV	$70
SR 125	I-8	SR 52	8F	8F + 2HOV	$110
SR 163	I-805	I-15	8F	8F + 2HOV	$100
SR 241**	Orange County	I-5	---	4F + 2HOV	$420
I-805	SR 905	Telegraph Cyn.	8F	8F + 4ML	$180
I-805	Telegraph Cyn.	I-8	8F	10F + 4ML	$630
I-805	Mission Valley Viaduct		8F	8F + 4ML	$250
I-805	I-8	I-5	8F	10F + 4ML	$800
				Subtotal	$12,420

HOV Connectors			Cost ($ millions)
Freeway	**Intersecting Freeway**	**Movement**	
I-5	SR 54	West to South, North to East, South to East, and West to North	$300
I-5	SR 94	West to South, North to East, South to East, and West to North	$300
I-5	SR 52	West to South, North to East, South to East, and West to North	$300
I-5	I-805	North to North, and South to South	$180
I-5	SR 56	South to East, West to North, North to East, and West to South	$300
I-5	SR 78	South to East, West to North, North to East, and West to South	$300
I-8	SR 125	West to North, and North to East	$250
I-15	SR 94	East to North, and South to West	$150
I-15	I-805	North to North, and South to South	$150
I-15	SR 52	West to North, and South to East	$150
I-15	SR 163	North to North, and South to South	$150
I-15	SR 56	East to North, and South to West	$150
I-15	SR 78	East to South, and North to West	$200
I-805	SR 54	South to East, and West to North	$150
I-805	SR 94	West to South, North to East, West to North, West to East, East to South, and North to West	$450
I-805	SR 163	North to North, and South to South	$150
I-805	SR 52	West to North, and South to East	$150
SR 52	SR 125	North to West, and East to South	$150
		Subtotal	$3,930

Highway System Completion					
Freeway	**From**	**To**	**Existing**	**Improvement**	
I-5/I-805	Port of Entry – Mexico		--	Inspection Facility	$20
SR 11	SR 905	Mexico	--	4F	$190
SR 52	SR 125	SR 67	--	4F	$290
SR 56	Camino Ruiz	Carmel Country	--	4F	$130
SR 125**	SR 905	San Miguel Road	--	4T	$400
SR 125	San Miguel Road	SR 54	--	4F	$140
SR 125	Jamacha Road	SR 94	--	6F	$170
SR 125	Navajo Road	Grossmont	--	6F	$70
SR 905	I-805	Mexico	--	6F	$290
				Subtotal	$1,700

Highway Widening, Arterials, and Freeway Interchanges					Cost ($ millions)
Freeway	**From**	**To**	**Existing**	**Improvement**	
I-5	I-805	SR-56	10F	14F	$190
SR 52	SR 125	SR 67	4F	6F	$30
SR 54	SR 125	I-8	2C	6E	$720
SR 67	I-8	Mapleview Street	6F/4F	8F/6F	$100
SR 67	Mapleview Street	Dye Road	2C	4C	$240
SR 75/ SR 282***	Glorietta Blvd.	Alameda Blvd.	6C	6C + 2TL	$300
SR 76	I-5	Melrose Drive	4E	6E	$60
SR 76	Melrose Drive	Mission Road	2C	6C	$120
SR 76	Mission Road	I-15	2C	4C	$80
SR 76	I-15	Pala Mission Road	2C	4C	$70
SR 94	Avocado Blvd.	Jamacha Road	4C	6C	$20
SR 94	Jamacha Road	Otay Lakes Road	2C	4C	$160
SR 125**	SR 905	San Miguel Road	4T	8T	$110
SR 125	San Miguel Road	SR 54	4F	8F	$60
SR 905	I-5	Mexico	4F/6F	8F	$160
Regionally Significant Arterials and Local Freeway Access Interchanges					$700
				Subtotal	$3,120

Freeway Connectors				
Freeway	**Intersecting Freeway**	**Movement**		
I-5	SR 94	North to East		$180
I-5	I-8	East to North & South to East		$200
I-5	SR 56	West to North & South to East		$140
I-5	SR 78	West to South & South to East		$150
I-15	SR 56	North to West		$120
SR 94	SR 125	West to North& South to East		$110
			Subtotal	$900
			Total	**$36,740**

KEY:

C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

* funding from state/federal discretionary transportation funding sources
** privately funded
*** funding from federal discretionary defense funding sources

TABLE A.11—MAJOR TRANSIT EXPENDITURES - UNCONSTRAINED REVENUE SCENARIO ($ MILLIONS)

PROJECT CATEGORIES	TOTAL
Major New Capital Facilities	*$14,670*
Mission Valley East Extension	$450
Oceanside to Escondido Rail	$350
Sorrento Mesa Transitway	$500
Kearny Mesa Transitway	$300
Mid-Coast Light Rail	$590
Oceanside to Escondido Rail Doubletracking/ NC Fair Extension	$170
Coastal Rail Doubletracking and Other Improvements*	$420
Coastal Rail Tunnels*	$1,250
Other Regional Light Rail Grade Separations	$400
Improved/New Major Transit Stations and Centers	$2,920
Direct Access Ramps	$1,840
Early Action Project Funding	$100
Vehicles for New Services	$1,030
Arterial Transit Priority Improvements	$4,350
Operating Subsidies	*$8,640*
Existing Service	$4,600
New/Improved Service	$4,040
Rehab/Replacement/Miscellaneous Capital	*$2,480*
TOTAL	**$25,790**

* Funding from state/federal discretionary transportation sources

TABLE A.12—UNCONSTRAINED TRANSIT SERVICES (HEADWAYS)
($ MILLIONS)

ROUTE	DESCRIPTION	PEAK HEADWAY (MINUTES)	OFF-PEAK HEADWAY (MINUTES)
398	Increase in Existing Coaster	30	30
399	Increase in Oceanside to Escondido Rail	10	10
470	Temecula to Sorrento Mesa via Mira Mesa Blvd.	10	30/60*
471	Palomar Airport Road	10	10
472	Legoland to UTC via El Camino Real/I-5	10	10
473	Sycamore to Solana Beach via Legoland/Hwy 101	10	10
474	Oceanside to Vista via Mission	10	10
476	Carlsbad to Vista via Vista Way	10	10
480	Vista to UTC via College/I-5	10	10
510	Increase in Existing Blue Line Trolley	7.5	7.5
520	Increase in Orange Line Trolley	10	10
570	Mid-Coast	10	10
610	Escondido to Centre City/SDIA via I-15/SR 94	5	10
611	El Cajon Boulevard	5	10
612	Old Town to Balboa Station via Mission Blvd.	10	10
613	Centre City to Point Loma via Harbor Dr.	10	10
614	Spring Valley to Mission Gorge via SDSU	10	10
616	Pt. Loma to Mira Mesa via Black Mt. & Linda Vista	5	10
617	Poway to Torrey Pines via Black Mt./Del Mar Heights	10	10
619	32nd Street to Sorrento Mesa via I-15/Clairemont Mesa	5	10
620	Ramona to UTC via Poway and SR 56	10	-
621	Coronado to Sorrento Mesa via Hillcrest/Genesee Ave.	5	10
623	Mission SD to Grossmont via Navajo	10	10
624	University Ave.	5	10
625	Imperial Beach to Otay Mesa via SR 905	10	10
626	National City to Iris Station via 3rd/4th	10	10
627	H Street Trolley to Eastlake via SW College	10	10
628	Centre City to Otay Mesa via SR 94/I-805	5	10
629	SDIA to Kearny Mesa via Clairemont Mesa	10	10
630	Old Town to Grossmont Center via El Cajon Blvd.	10	10
631	8th St. National City to Plaza Bonita via SR 54	10	10
632	Balboa Station to UTC via La Jolla	10	10

ROUTE	DESCRIPTION	PEAK HEADWAY (MINUTES)	OFF-PEAK HEADWAY (MINUTES)
635	Main Street to Otay Ranch	10	10
640	San Ysidro to Old Town via I-5/Pacific Hwy.	10	10
660	El Cajon to UTC via SR 52	10	10
670	El Cajon to San Ysidro via I-805/SR 125/SR 54	10	10
680	Otay Mesa to Sorrento Mesa via I-15/I-805	5	10

* Off-peak headways at 30 minutes to Escondido and 60 minutes to Temecula

TABLE A.13—SUMMARY OF HIGHWAY SCENARIOS

ROUTE	FROM	TO	EXISTING	REVENUE CONSTRAINED PLAN	REASONABLY EXPECTED REVENUE	UNCONSTRAINED REVENUE
I-5	Mexico	SR 905	8F	8F	8F	8F
I-5	SR 905	SR 54	8F	8F	8F+2HOV	8F+2HOV
I-5	SR 54	I-15	8F	Access Improvements	8F+2HOV	10F+2HOV
I-5	I-15	I-8	8F	Access Improvements	8F+2HOV	8F+2HOV
I-5	I-8	I-805	8F	8F	10F+2HOV	10F+2HOV
I-5	I-805	SR 56	10F	14F+4ML	14F+4ML	14F+4ML
I-5	SR 56	Encinitas Blvd.	8F	8F+4ML	10F+4ML	10F+4ML
I-5	Encinitas Blvd.	Palomar Airport Rd.	8F	8F+4ML	8F+4ML	10F+4ML
I-5	Palomar Airport Rd.	Vandegrift Blvd.	8F	8F+4ML	8F+4ML	8F+4ML
I-5	Vandegrift Blvd.	Orange County	8F	8F	8F	8F+4ML
I-8	I-5	I-15	8F	8F	8F	8F+2HOV
I-8	I-15	College Avenue	10F	10F	10F	10F+2HOV
I-8	College Avenue	SR 125	8F	8F	8F	8F+2HOV
I-8	SR 125	SR 67	8F	8F	8F+2HOV	8F+2HOV
I-8	SR 67	2nd Street	6F	6F	6F+2HOV	6F+2HOV
I-8	2nd Street	Los Coches Rd.	4F	4F	6F	6F+2HOV
I-8	Los Coches Rd.	Imperial County	4F	4F	4F	4F
SR 11	SR 905	Mexico	---	4F	4F	4F
I-15	I-5	SR 94	6F	6F	6F	8F+2HOV
I-15	SR 94	SR 163	8F	8F+2HOV	8F+2HOV	8F+2HOV
I-15	SR 163	SR 56	8F+2ML(R)	8F+4ML/MB	8F+4ML/MB	8F +4ML/MB
I-15	SR 56	Centre City Pkwy.	8F	8F+4ML/MB	8F+4ML/MB	8F +4ML/MB
I-15	Centre City Pkwy.	SR 78	8F	8F+4ML	8F + 4ML	8F +4ML
I-15	SR 78	Riverside County	8F	8F	8F	8F+2HOV
SR 52	I-5	I-805	4F	4F	6F	6F+2HOV
SR 52	I-805	I-15	6F	6F+2HOV	6F+2HOV	8F+2HOV
SR 52	I-15	SR 125	4F	6F+2ML(R)	6F+2ML(R)	6F+3ML/MB
SR 52	SR 125	SR 67	---	4F	4F	6F

ROUTE	FROM	TO	EXISTING	REVENUE CONSTRAINED PLAN	REASONABLY EXPECTED REVENUE	UNCONSTRAINED REVENUE
SR 54	I-5	I-805	6F	6F	6F+2HOV	8F+2HOV
SR 54	I-805	SR 125	4F+2HOV	6F+2HOV	6F+2HOV	8F+2HOV
SR 54	SR 125	SR 94	---	---	---	6E
SR 54	SR 94	I-8	2C	2C	2C	6E
SR 56	I-5	I-15	---	6F	6F+2HOV	6F+2HOV
SR 67	I-8	Mapleview St.	4F	4F	4F	6F
SR 67	Mapleview St.	Dye Road	2C	2C	4C	4C
SR 67	Dye Road	SR 78	4C	4C	4C	4C
SR 75	I-5 (South)	3rd Street	4C	4C	4C	4C
SR75/SR 282	Glorietta Blvd.	Alameda Blvd.	6C	6C	6C+2TU	6C+2TU
SR 75	Glorietta Blvd.	I-5 (North)	5MB	5MB	5MB	5MB
SR 76	I-5	Melrose Drive	4E	4E	4E	6E
SR 76	Melrose Drive	Mission Road	2C	4C	4C	6C
SR 76	Mission Road	I-15	2C	2C	4C	4C
SR 76	I-15	Pala Mission Road	2C	2C	2C	4C
SR 76	Pala Mission Road	SR 79	2C	2C	2C	2C
SR 78	I-5	I-15	6F	6F	6F+2HOV	6F+2HOV
SR 78	I-15	Imperial County	2C	2C	2C	2C
SR 79	I-8	Riverside County	2C	2C	2C	2C
SR 94	I-5	I-15	8F	8F+2HOV	8F+2HOV	8F+2HOV
SR 94	I-15	I-805	8F	8F	8F+2HOV	8F+2HOV
SR 94	I-805	College Avenue	8F	8F	8F+2HOV	10F+2HOV
SR 94	College Avenue	SR 125	8F	8F	8F+2HOV	8F+2HOV
SR 94	SR 125	Avocado Blvd.	4F	4F	6F	6F+2HOV
SR 94	Avocado Blvd.	Jamacha Rd.	4C	4C	6C	6C
SR 94	Jamacha Rd.	Steele Cyn. Rd.	2C	2C	4C	4C
SR 94	Steele Cyn. Rd.	Otay Lakes Rd.	2C	2C	2C	4C
SR 94	Otay Lakes Rd.	I-8	2C	2C	2C	2C
SR 125	SR 905	Telegraph Cyn. Rd.	---	4T	8T	8T
SR 125	Telegraph Cyn. Rd.	San Miguel Rd.	---	6T	8T	8T
SR 125	San Miguel Rd.	SR 54	---	6F	8F	8F

ROUTE	FROM	TO	EXISTING	REVENUE CONSTRAINED PLAN	REASONABLY EXPECTED REVENUE	UNCONSTRAINED REVENUE
SR 125	SR 54	SR 94	---	6F+2HOV	6F+2HOV	8F+2HOV
SR 125	SR 94	I-8	8F	8F	8F+2HOV	10F+2HOV
SR 125	I-8	SR 52	---	6F	6F	8F+2HOV
SR 163	I-5	I-8	4F	4F	4F	4F
SR 163	I-8	I-805	8F	8F	8F	8F
SR 163	I-805	SR 163	8F	8F	8F	8F+2HOV
SR 188	Mexico	SR 94	2C	2C	2C	2C
SR 241	I-5	Orange County	---	4T+2HOV	4T+2HOV	4T+2HOV
I-805	I-5 (South)	SR 905	8F	8F	8F	8F
I-805	SR 905	Telegraph Cyn. Rd.	8F	8F+2HOV	8F+4ML	8F+4ML
I-805	Telegraph Cyn. Rd.	SR 54	8F	8F+2HOV	8F+4ML	10F+4ML
I-805	SR 54	I-8	8F	8F+4ML	8F+4ML	10F+4ML
I-805	Mission Valley Viaduct		8F	8F+4ML	8F+4ML	8F+4ML
I-805	I-8	I-5 (North)	8F	8F+4ML	8F+4ML	10F+4ML
SR 905	I-5	I-805	4F	4F	6F	8F
SR 905	I-805	Mexico	---	6F	6F	8F

KEY:
C = Conventional Highway Lanes
F = Freeway Lanes
TU = Tunnel
T = Toll Road
MB = Movable Barrier
ML = Managed Lanes (HOV & Value Pricing)
HOV = High Occupancy Vehicle Lanes
ML(R) = Managed Lanes (Reversible)

TABLE A.13 (CONTINUED)—HOV CONNECTORS

FREEWAY	INTERSECTING FREEWAY	MOVEMENT	REVENUE CONSTRAINED PLAN	REASONABLY EXPECTED REVENUE	UNCONSTRAINED REVENUE
I-5	SR 54	West to South, North to East, South to East, and West to North			X
I-5	SR 94	West to South, North to East, South to East, and West to North			X
I-5	SR 52	West to South, North to East, South to East, and West to North			X
I-5	I-805 Merge	North to North and South to South	X	X	X
I-5	SR 56	South to East, West to North, North to East, and West to South			X
I-5	SR 78	South to East, West to North, North to East, and West to South			X
I-8	SR 125	West to North and North to East			X
I-15	SR 94	East to North and South to West	X	X	X
I-15	I-805	North to North and South to South			X
I-15	SR 56	East to North and South to West			X
I-15	SR 52	West to North and South to East			X
I-15	SR 78	East to South and North to West		X	X
SR 54	SR 125	North to West, East to South, West to South, and North to East			X
I-805	SR 54	South to East and West to North			X
I-805	SR 94	West to South, North to East, West to North, South to East, East to South, & North to West			X
I-805	SR 52	West to North and South to East		X	X

TABLE A.13 (CONTINUED)—FREEWAY CONNECTORS

FREEWAY	INTERSECTING FREEWAY	MOVEMENT	REVENUE CONSTRAINED PLAN	REASONABLY EXPECTED REVENUE	UNCONSTRAINED REVENUE
I-5	SR 94	North to East			X
I-5	I-8	East to North and South to West		X	X
I-5	SR 56	West to North and South to East	X	X	X
I-5	SR 78	Widen North to East	X	X	X
I-5	SR 78	West to South and South to East	X	X	X
I-15	SR 56	East to North	X	X	X
I-15	SR 56	North to West			X
SR 94	SR 125	West to North and South to East	X	X	X

TABLE A.14—SUMMARY OF TRANSIT SERVICES AND HEADWAYS (IN MINUTES)

ROUTE	DESCRIPTION	REVENUE CONSTRAINED PLAN Peak/Off-Peak	REASONABLY EXPECTED REVENUE Peak/Off-Peak	UNCONSTRAINED REVENUE Peak/Off-Peak
398	Increase in Existing Coaster Service (current headways 36/120)	20/60	20/60	30/3
399	Increase in Oceanside to Escondido Rail Service (opening headways 30/30)	15/30	10/10	10/10
470	Temecula to Sorrento Mesa via I-15/ Mira Mesa Boulevard	--/ --	15-30/30-60*	10/30-60
471	Oceanside to Escondido via Palomar Airport Road	--/ --	10/10	10/1
472	Northeast Oceanside to Sorrento Mesa via El Camino Real/I-5	--/ --	10/10	10/10
473	Sycamore to Solana Beach via Legoland/SR 101	--/ --	--/ --	10/1
474	Oceanside to Vista via Mission	--/ --	--/ --	10/1
476	Carlsbad to Vista via Vista Way	--/ --	--/ --	10/1
480	Vista to UTC via College/I-5	--/ --	--/ --	10/1
510	Increase in Existing Blue Line Trolley Service (current headways 7.5/15)	7.5/7.5	7.5/7.5	7.5/7.5
520	Increase in Existing Orange Line Trolley Service (current headways 15/15-30)**	15/15-30***	7.5/15-30	10/1
570	Mid-Coast from Old Town to Sorrento Mesa	7.5/15	7.5/15	10/10
610	Escondido to Centre City & SDIA via I-15/ SR 94	10/30	5/10	5/10
611	El Cajon Boulevard to Centre City	10/10	5/10	5/10
612	Old Town to Kearny Mesa via Mission Boulevard/Balboa Avenue	--/ --	10/10	10/10
613	Centre City to Point Loma via Harbor Drive	--/ --	--/ --	10/10
614	Spring Valley to Mission Gorge via SDSU	--/ --	--/ --	10/10
616	Pt. Loma to Mira Mesa via Black Mountain & Linda Vista (Old Town to Kearny Mesa segment included in Reasonably Expected Revenue Scenario)	--/ --	--/ --	5/10
617	Poway to Torrey Pines via Black Mt./Del Mar Heights	--/ --	--/ --	10/10

* Peak headways at 15 minutes to Escondido and 30 minutes to Temecula; off-peak headways at 30 minutes to Escondido and 60 minutes to Temecula

** Off-peak headways at 15 minutes to El Cajon and 30 minutes to Santee

*** Station improvements only

ROUTE	DESCRIPTION	REVENUE CONSTRAINED PLAN Peak/Off-Peak	REASONABLY EXPECTED REVENUE Peak/Off-Peak	UNCONSTRAINED REVENUE Peak/Off-Peak
619	32nd Street to Kearny Mesa via I-15/ Kearny Mesa Transitway	--/ --	5/10	5/10
620	Ramona to UTC via Poway and SR 56	--/ --	--/ --	10/--
621	Coronado and Centre City to Sorrento Mesa via Hillcrest/Genesee Avenue	10/10-30****	5/10	5/10
623	Mission SD to Grossmont via Navajo	--/ --	--/ --	10/10
624	University Avenue	--/ --	--/ --	5/10
625	Imperial Beach to Otay Mesa via SR 905	--/ --	--/ --	10/10
626	National City to Iris Station via 3rd /4th Avenues	--/ --	--/ --	10/10
627	H Street Trolley to Eastlake via Southwestern College	--/ --	30/30	10/10
628	Centre City to Otay Mesa via SR 94/I-805	10/10	5/10	5/10
629	SDIA to Kearny Mesa via Claremont Mesa	--/ --	--/ --	10/10
630	Old Town to Grossmont Center via El Cajon Blvd.	--/ --	--/ --	10/10
631	8th St National City to Plaza Bonita via SR 54	--/ --	--/ --	10/10
632	Balboa Station to UTC via La Jolla	--/ --	--/ --	10/10
634	UCSD/UTC Loop	--/ --	--/ --	10/10
640	San Ysidro to Old Town via I-5/Pacific Highway	--/ --	--/ --	10/10
641	Main Street to Otay Ranch	--/ --	--/ --	10/10
660	El Cajon to Sorrento Mesa via SR 52	--/ --	10/--	10/10
670	El Cajon to San Ysidro via I-805/SR 125/SR 54	--/ --	--/ --	10/10
680	Otay Mesa to Sorrento Mesa via I-15/I-805	--/ --	5/10	5/10

**** Off-peak headways at 10 minutes to Fashion Valley and 30 minutes to Sorrento Mesa

TABLE A.15—SUMMARY OF TRANSIT EXPENDITURES
($MILLIONS)

PROJECT CATEGORIES	REVENUE CONSTRAINED PLAN	REASONABLY EXPECTED	UNCONSTRAINED REVENUE
OPERATING SUBSIDIES			
Existing Services			
Blue Car Local Services[1, 2]	$2,435	$2,888	$3,510
Regional/Corridor Services (Trolley/Coaster)	$550	$550	$550
ADA[1, 2]	$350	$440	$540
New/Improved Services			
Green Car Circulator Services	$130	$150	$200
Regional/Corridor Services	$600	$1,417	$3,800
Early Action	$0	$30	$40
Subtotal	*$4,065*	*$5,475*	*$8,640*
CAPITAL			
Rehab./Replacement/Miscellaneous Capital			
Miscellaneous Capital [3]	$360	$500	$870
Replacements			
Existing Regional/ Corridor Services	$530	$530	$530
Existing and Enhanced Blue Car Local Services	$480	$710	$720
Existing ADA Services	$80	$90	$160
Existing Green Car Circulator Services	$110	$150	$200
Subtotal	*$1,560*	*$1,980*	*$2,480*
Major New Capital Facilities			
Mission Valley East Extension	$450	$450	$450
Oceanside to Escondido Rail	$350	$350	$350
Sorrento Mesa Transitway	$0	$500	$500
Kearny Mesa Transitway	$0	$300	$300
Mid-Coast Light Rail	$590	$590	$590
Oceanside-Escondido Rail Double Tracking/ North County Fair Extension	$170	$170	$170
Coastal Rail Double Tracking and Other Improvements [4]	$420	$420	$420
Coastal Rail Tunnels at University City and Del Mar [4]	$360 (Del Mar only)	$1,250	$1,250
Regional Light Rail Grade Separations	$100	$200	$400
Improved/New Major Transit Stations and Centers	$470	$1,670	$2,920
Direct Access Ramps to Managed/HOV Lanes	$480	$1,080	$1,840
Early Action Project Funding	$80	$80	$100
Vehicles for New Services	$260	$550	$1,030
Arterial Transit Priority Improvements	$100	$890	$4,350
Subtotal	*$3,830*	*$8,500*	*$14,670*
Total Plan:	*$9,465*	*$15,955*	*$25,790*
1 Percent increase in Blue Car/ADA - MTDB	0%	25%	100%
2 Percent increase in Blue Car/ADA - NCTD	0%	75%	100%

3 Includes new maintenance facilities and signal software

4 Funding from state/federal discretionary transportation sources

APPENDIX B
PUBLIC INVOLVEMENT PROGRAM

To obtain public input in the development of MOBILITY 2030, SANDAG engaged consultant services to develop and implement a comprehensive public outreach and involvement program. A major goal of the 2030 RTP was to reach out to non-traditional as well as traditional audiences to raise their awareness of the transportation planning process. This helped ensure that environmental justice issues were addressed and that interested members of the public had ample opportunity to provide meaningful input while the Plan was in its draft form. Early public involvement and comment about the Plan was important to SANDAG as part of developing a transportation public policy blueprint that meets the travel needs of our residents.

Program Objectives included:

- To solicit participation from a broad range of groups and individuals in the Plan's development and decision-making process
- To raise awareness of MOBILITY 2030
- To provide information to San Diego region residents and other stakeholders
- To stimulate dialogue about the transportation challenges facing the San Diego region during the next three decades
- To develop and incorporate into the Plan, realistic solutions that address the diverse mobility needs of the region's residents, visitors and business people
- To build public support for transportation improvements outlined in the Plan

SANDAG secured a full-service advertising, marketing, and public relations agency in San Diego to assist with the public outreach and involvement program. The agency developed a comprehensive strategic marketing and public outreach program that included radio, television, newspaper, outdoor, and bus advertising. Public information materials included brochures, a Web site, and an on-line and printed survey. In addition, a "Road Show" program was developed for the public outreach efforts. The public outreach and marketing program was implemented in close coordination with Caltrans, MTDB, and NCTD.

An overall theme — *Keep San Diego Moving* — was incorporated into all aspects of the marketing and public information program. A KeepSanDiegoMoving.com Web site was launched to highlight commute options, regional transportation programs, and our local transportation partners. KeepSanDiegoMoving.com was a key component of SANDAG's public information and outreach effort to solicit feedback on the Plan. The Web site also featured an on-line survey and direct e-mail link to suggest solutions to reduce traffic congestion. Table B.1 summarizes the program results through December 2002.

Advertising appeared in community newspapers to help reach populations that traditionally do not participate in the transportation planning process. The advertising solicited feedback either via the KeepSanDiegoMoving.com Web site or the toll free phone number where the public commented on the Plan or any other transportation issue. Advertisements appeared in English, Spanish, and other languages as appropriate. The advertising program included television, radio, newspapers, outdoor and bus shelters. A total of 877 spots ran on cable television from September 30 to October 31, 2002. There were 963 radio

spots over five two-week flights from June through October 2002. Table B.2 summarizes the advertising program.

The transportation public outreach program took SANDAG Directors and staff to more than 30 events in all corners of the region with the SANDAG Road Show. Table B.3 below summarizes the Road Show events schedule. SANDAG representatives staffed a colorful, eye-catching booth and interacted with event-goers and distributed information, solicited feedback with a short survey, and answered questions for residents. Brochures were distributed on the 2030 RTP, and other SANDAG transportation programs/projects.

A baseline resident opinion research survey was conducted in June 2002 prior to implementation of the marketing and outreach program and a follow up survey conducted in November 2002. The telephone survey was conducted in English or Spanish on a random sample of 450 of the region's residents. The primary goal was to track the baseline measures of resident awareness, knowledge, opinions, and behaviors relative to various elements focused on during the marketing program. Of all the items tested, SANDAG, the Regional Transportation Plan, *TransNet*, Smart Growth, and RideLink, SANDAG received the highest percentage of recognition. The most significant changes from the baseline survey in June to the tracking survey in November were:

- Awareness of the Regional Transportation Plan increased ten percent from 19.7% to 29.3%
- Awareness of SANDAG increased six percent from 31.3% to 37.6%

More than three dozen newspaper articles, editorials, and SANDAG-authored opinion pieces appeared in community and regional newspapers and magazines during June to December 2002. In addition, announcements about the Road Show appeared in newspapers throughout the region. Table B.4 summarizes public presentations on MOBILITY 2030 made to date.

TABLE B.1—PUBLIC INVOLVEMENT PROGRAM RESULTS
(THROUGH DECEMBER 2002)

Number of Web site hits	6,000
Number of phone calls	53
Number of surveys completed	2,588

TABLE B.2—MOBILITY 2030 PUBLIC OUTREACH ADVERTISING PLAN (2002)

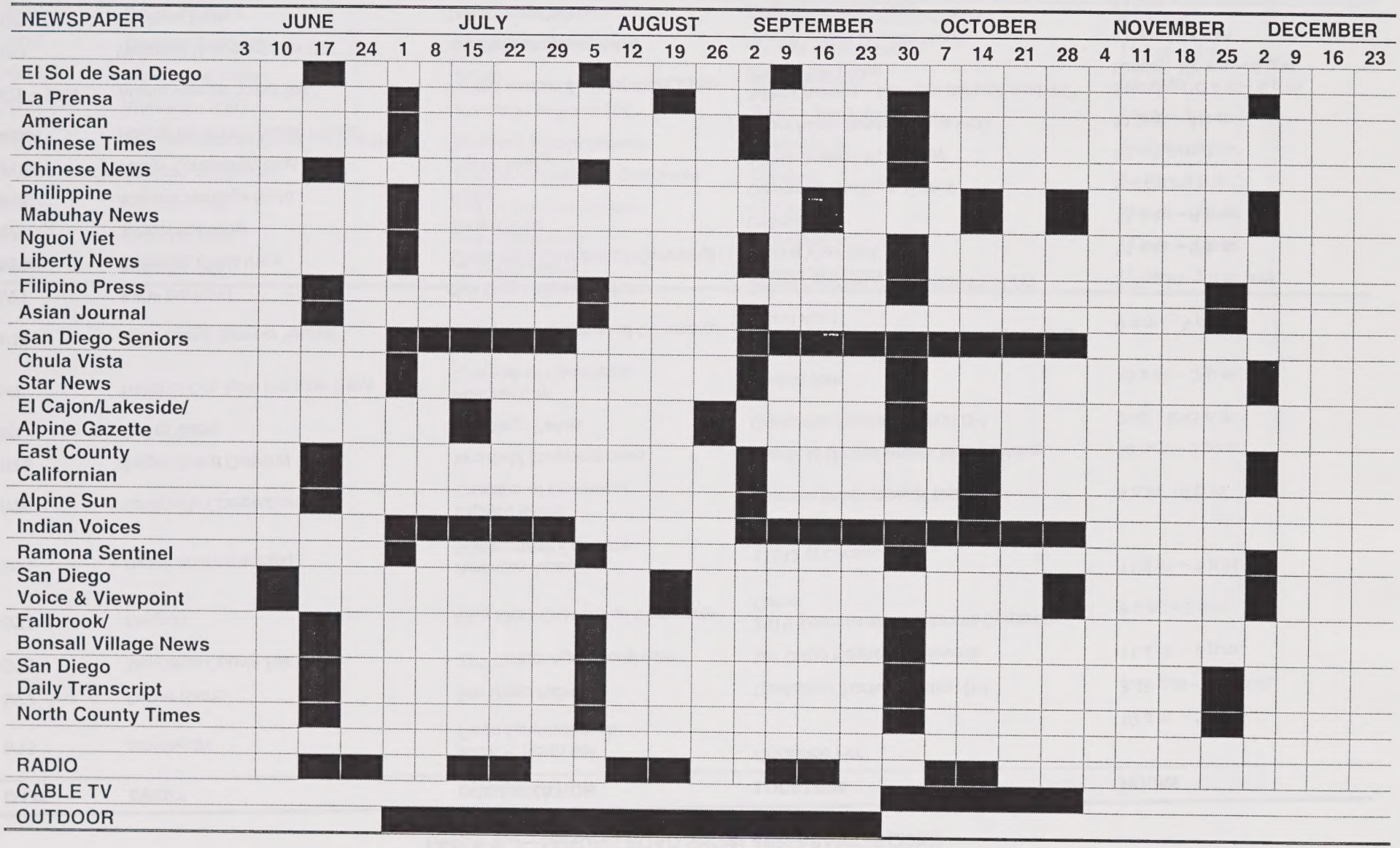


TABLE B.3—SANDAG ROAD SHOW APPEARANCES (2002)

DATE	EVENT	ORGANIZATION	LOCATION	HOURS
6/15	Juneteenth	NAACP, North San Diego County Branch	Oceanside Pier	10 a.m. – 5 p.m.
6/22	Padres Game	San Diego Padres	Qualcomm Stadium Section D-1	3:45 p.m - 6:45 p.m.
6/25	San Diego County Fair	22nd District Agricultural Assn.	San Diego County Fairgrounds	11 a.m. – 7 p.m.
6/27	Mexport	Otay Mesa Chamber of Commerce	2515 Britannia Blvd., Britannia Corporate Center	9 a.m. – 5 p.m.
7/19	Health & Lifestyle Expo	American Assets Management Company	11512 El Camino Real	11 a.m. – 1 p.m.
7/20	Sandcastle Competition	Imperial Beach Chamber of Commerce	Seacoast Drive, Imperial Beach	9 a.m. - 6 p.m.
7/28	Target Grand Opening	Westfield Shoppingtowns	Westfield Shoppingtown Mission Valley	10 a.m. - 5 p.m.
8/3	Padres Game	San Diego Padres	Qualcomm Stadium Section D-1	3:45 - 6:45 p.m.
8/4	National City Auto Heritage Show	National City Chamber of Commerce	Kimball Park	10 a.m. – 3 p.m.
8/18	2002 Grand Summer Festival	San Marcos Chamber of Commerce	Via Vera Cruz (between San Marcos Blvd. & Grand Ave.)	9 a.m. – 5 p.m.
8/21	KPOP Big Band	San Diego Museum of Art	Balboa Park-San Diego Museum of Art	5:30 p.m. – 7:30 p.m.
8/25	Celebrate Chula Vista	Chula Vista Chamber of Commerce	Marina View Park	11 a.m. – 9 p.m.
9/7	Sycuan PowWow	Sycuan Tribe	Dehesa Road	11 a.m. – 4 p.m.
9/13	Hispanic Heritage Night	Padres	Qualcomm Stadium, Gate K	5 – 7 p.m.
9/14	Poway Community Days	City of Poway	13094 Bowron Rd., Poway	12 – 5 p.m.
9/15	Festival del Grito - Fiestas Patrias		Coors Amphitheatre, Chula Vista	11 a.m. – 4 p.m.
9/28 – 9/29	Adams Avenue Street Fair	Adams Avenue Business Association	Adams Avenue – between Bancroft and 35th Streets, San Diego	Saturday: 10 a.m.– 6 p.m. Sunday: 10: a.m.– 6 p.m.
10/3	Westfield Shoppingtown UTC	Westfield Shoppingtowns	La Jolla Village Dr., San Diego	11 a.m. – 3 p.m.
10/9	Employer Expo	Delta Design/Anacomp	Delta Design/Anacomp	11 a.m. – 1 p.m.
10/10	Westfield Shoppingtown Horton Plaza	Westfield Shoppingtowns	4th and Broadway, San Diego	3 – 7 p.m.

DATE	EVENT	ORGANIZATION	LOCATION	HOURS
10/10	RideShare Week	SANDAG/NCTD	Carlsbad Village Transit Center	6 – 8 a.m.
10/17	Employer Expo	La Jolla Pharmaceutical	La Jolla Pharmaceutical	11 a.m. – 1 p.m.
10/19	Miramar Air Show	MCAS	MCAS Miramar	9 a.m. to
10/23	Workplace 2002	San Diego Regional EDC	Rancho Bernardo Inn	7 a.m. – 3 p.m.
10/26	Westfield Shoppingtown Plaza Bonita	Westfield Shoppingtowns	National City	11 a.m. – 3 p.m.
11/3	Carlsbad Village Fair	Carlsbad Chamber of Commerce	Carlsbad	8 a.m. – 4 p.m.
11/6	Employer Expo	Scripps Research Institute	La Jolla	11 a.m. – 2 p.m.
11/14	Employer Expo	City of Escondido	Escondido	11 a.m. – 1 p.m.
11/20	Employer Expo	US Postal Service	Carmel Mountain	11 a.m. – 2 p.m.

TABLE B.4—2030 RTP PUBLIC PRESENTATIONS (2002 & 2003)

DATE	GROUP/EVENT
April 27, 2002	City of Chula Vista General Plan Workshop
May 2, 2002	EDC Quality of Life Committee
May 16, 2002	NCTD Board of Directors
June 27, 2002	Joint RPWG/CTAC Meeting
July 16, 2002	ATAP Working Group
August 1, 2002	NCTD Board Planning Committee
August 12, 2002	San Diego Highway Development Assn.
August 22, 2002	MTDB Board of Directors
August 22, 2002	NCTD Board of Directors
August 29, 2002	C3
September 5, 2002	Subcommittee on Accessible Transportation
September 6, 2002	KPBS These Days
September 9, 2002	San Diego Sustainable Design Project
September 17, 2002	Del Mar City Council
September 18, 2002	City of San Diego Science & Technology Commission
September 19, 2002	Mayor of San Diego's Freeway Congestion Strike Team
October 3, 2002	WTS/ITE
October 9, 2002	Caltrans Statewide Rail Conference
October 11, 2002	SANDAG Tribal Summit
October 18, 2002	City of Encinitas Senior Citizen Commission
October 22, 2002	American Society of Civil Engineers
November 6, 2002	North County Coordinating Council Meeting
November 14, 2002	MTDB Board of Directors
November 14, 2002	North County Economic Development Corporation (EDC) Board of Directors
November 19, 2002	City of Oceanside Transportation Commission
November 20, 2002	Bi-State Transportation Technical Advisory Committee (BTTAC)
December 4, 2002	Joint meeting of Regional Transit Management Committee, Operators Advisory Committee, and Transit Services and Facilities Advisory Committee
December 5, 2002	Carlsbad Chamber of Commerce
December 10, 2002	Carlsbad Kiwanis
December 17, 2002	Solana Beach City Council
December 19, 2002	NCTD Board of Directors
January 6, 2003	Imperial Beach City Council
January 7, 2003	Ted Leitner Morning Show (Talk Radio 690)
January 22, 2003	Escondido City Council
February 4, 2003	Committee on Binational Regional Opportunities (COBRO)
February 11, 2003	La Mesa City Council
March 25, 2003	San Diego Regional Chamber of Commerce
April 10, 2003	Rancho Santa Fe Association

APPENDIX C
AIR QUALITY PLANNING AND TRANSPORTATION CONFORMITY

Background

The federal Clean Air Act (CAA), which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. California has adopted state air quality standards that are more stringent than the NAAQS. Areas with levels that exceed the standard for specified pollutants are designated as non-attainment areas.

The EPA requires that each state containing non-attainment areas develop plans to attain the NAAQS by a specified attainment deadline. These attainment plans are called State Implementation Plans. The San Diego County Air Pollution Control District (APCD) prepares the San Diego portion of the California State Implementation Plan (SIP). Once the standards are attained, further plans – called Maintenance Plans – are required to demonstrate continued maintenance of the NAAQS.

The 1982 SIP anticipated attaining federal ozone and carbon monoxide standards by 1987. However, these standards were not attained at that time. In 1988, the California Clean Air Act (CCAA) was enacted requiring the APCD to prepare a revised Regional Air Quality Strategy (RAQS) for achieving the state and, by extension, the less stringent national air quality standards.

The San Diego air basin is classified as a "serious" ozone non-attainment area under both the state and federal Clean Air Acts. The non-attainment classification, based on the amount of pollutant above the standard, determines the minimum state and federal control requirements and the federal attainment deadline. In 2001, the region attained the federal one-hour ozone standard, and in December 2002, a Maintenance Plan was submitted to the EPA as a SIP revision.

San Diego County is federally designated as a maintenance area for Carbon Monoxide (CO). The CO standard was attained in 1993, and the EPA approved a ten-year Maintenance Plan in 1998. An update to the CO Maintenance Plan is under development and the plan will cover the second ten-year maintenance period through 2018.

Transportation and Air Quality Planning

SANDAG prepared the Transportation Control Measures (TCM) Plan for Air Quality for inclusion in the 1991 RAQS. The TCM Plan includes traffic signal improvements, transit service expansion, vanpools, high occupancy vehicle lanes, park-and-ride lots, and bicycle facilities.

The federal CAA Amendments of 1990, the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, and the 1998 Transportation Equity Act for the 21st Century (TEA-21) promoted major reforms in the transportation planning process. The transportation conformity provisions of the CAA Amendments require that transportation plans, programs, and projects conform to the "purpose" of the SIP for the attainment of the NAAQS. Conformity is to ensure that new transportation projects do not jeopardize air quality in non-attainment or maintenance areas.

SANDAG, as the Metropolitan Planning Organization (MPO) for the San Diego region, must demonstrate that the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP) are in conformity with the SIP for meeting air quality standards. The U.S. Department of Transportation (DOT) signs

off on conformity of the region's RTP and RTIP. Conformity determinations for transportation plans, programs, and projects are based on the DOT/EPA conformity rule issued in November 1993 and its subsequent revisions.

In 1998, SANDAG and the APCD approved the San Diego Transportation Conformity Procedures. These procedures contain the Transportation Conformity Rule and locally developed Interagency Consultation Procedures. In addition to SANDAG and the APCD, the agencies involved in transportation/air quality coordination are Caltrans, the California Air Resources Board (ARB), DOT, and EPA. All these agencies comprise the San Diego Region Conformity Working Group (CWG).

Accomplishments Since 2000

Progress has been made in the region in attaining both federal and state air quality standards. Federal and state standards have been met for lead, nitrogen dioxide, sulfur dioxide, and CO, and federal standards are being met for inhalable particulates.

Since the passage of the federal CAA Amendments in 1970, air quality has gotten consistently better in spite of a more than doubling of travel. For photochemical smog (ozone), there were no exceedances of the federal one-hour standard in the San Diego air basin in 1999, 2000, and 2002. The region exceeded the federal standard on two days in 2001, compared with 12 days in 1995 and 87 days in 1980.

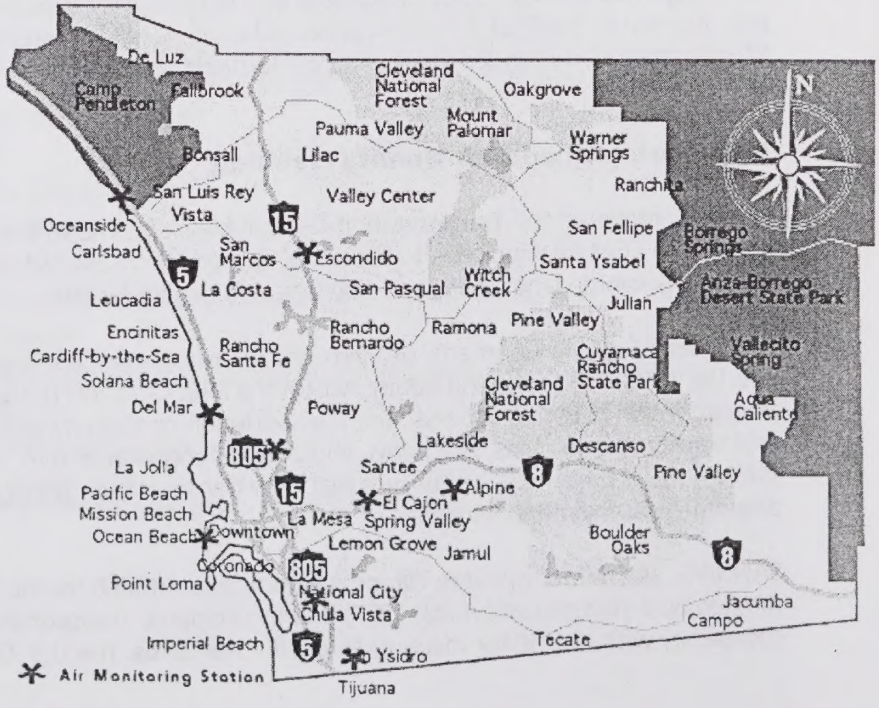
In 2001, the San Diego region attained the federal one-hour ozone standard. In December 2002, the San Diego Air Pollution Control Board (APCB) adopted a request for the EPA to redesignate the San Diego region from serious non-attainment to attainment/maintenance for ozone and a ten-year ozone Maintenance Plan for transmittal to ARB. Also in December 2002, ARB subsequently submitted the redesignation request and Maintenance Plan to the EPA for approval as an amendment to the SIP.

The region exceeded the more stringent state ozone standard on 15 days in 2002, compared with 96 days in 1995 and 167 days in 1980. The monitoring stations in the San Diego region are shown in Figure C.1.

ARB currently is developing a new Maintenance Plan for CO, covering the second ten-year maintenance period. This plan is expected to be adopted by ARB in Fall 2003 and then submitted to the EPA.

In 1997, the EPA revised the federal ozone standard from the current one-hour peak standard to an eight-hour average standard. At the same time, the EPA revised the standards for fine particulates. The EPA intends to release guidance to implement the revised standards by the end of 2003.

FIGURE C.1—SAN DIEGO AIR BASIN MONITORING STATIONS



Air Quality Planning Milestones

- In 2001, the APCD adopted the third Triennial RAQS revision. This revision made no changes to measures related to mobile sources.

- In 2001, the San Diego region attained the federal one-hour ozone standard.
- In December 2002, the APCB adopted the *Ozone Redesignation Request and Maintenance Plan for San Diego County* and transmitted these documents to the ARB.
- In December 2002, ARB submitted the *Ozone Redesignation Request and Maintenance Plan for San Diego County* to the EPA for approval as a SIP revision.
- In December 2002, ARB submitted a new motor vehicle emissions model (EMFAC 2002) to EPA requesting approval for use in SIP development and transportation conformity in California. EPA's approval is expected by March 28, 2003.
- ARB currently is preparing the CO Maintenance Plan update. Adoption is expected in Fall 2003.

Plan

The Air Quality Strategy incorporated into this RTP includes both the EPA-approved 1982 SIP transportation control measures (TCMs), and the more extensive program adopted under state law in the RAQS. Four strategies were included in the 1982 SIP: ridesharing, transit improvements, traffic flow improvements, and bicycle facilities and programs.

TCMs in the 1982 SIP have been fully implemented, but until they are formally removed from the SIP, SANDAG must continue to report on them in the conformity demonstrations required for federal approval of the RTP and RTIP. TCMs continue to be funded, and the level of improvements anticipated in the 1982 SIP for the four transportation strategies has been surpassed.

The RAQS and TCM Plan for Air Quality, adopted by the APCD, include tactics that meet the CCAA requirements for serious non-attainment areas.

Plan Requirements

A. The following RAQS and TCM Plan objectives are required by state law for the San Diego region:

1. Reasonably available TCMs sufficient to substantially reduce the rate of increase in passenger vehicle trips and miles traveled per trip.
2. Measures to achieve the use of a significant number of low-emission motor vehicles by operators of motor vehicle fleets. (ARB's Low Emission Vehicles program fulfills this requirement.)
3. Provisions to develop indirect source control programs.

B. In addition to the state requirements above, the RTP and RTIP must meet the requirements of the DOT/EPA final conformity rule summarized below:

Transportation Plans and Programs Requirements

1. The transportation plan and program must use the most recent estimates of mobile source emissions;
2. The transportation plan and program must provide for expeditious implementation of TCMs in the SIP; and
3. The transportation plans and programs of MPOs for areas designated non-attainment for ozone or carbon monoxide must contribute to emissions reductions.

Transportation Project Requirements

1. Transportation projects must come from a conforming transportation plan and program.

Transportation Conformity: Regional Emissions Analysis & Modeling Procedures

Introduction

The 2030 Regional Transportation Plan includes policies and programs to improve mobility in the San Diego region to the year 2030. The RTP is, in essence, three long-range plans. Besides the 2030 Mobility Plan, which is based on reasonably expected transportation funding and the Unconstrained Revenue Plan, SANDAG developed a 2030 Revenue Constrained Plan for the purpose of conducting the air quality conformity analysis.[1]

Appendix A of the 2030 RTP describes the Revenue Constrained Plan, and Chapter 4 of the 2030 RTP and the Technical Appendices provide information on revenue assumptions.

As explained in the Transportation and Air Quality Planning section of this Appendix, SANDAG and the U.S. DOT must make a determination that the Revenue Constrained Plan conforms to the SIP for air quality. Conformity to the SIP means that transportation activities will not create new air quality violations, worsen existing violations, or delay the attainment of the national ambient air quality standards.

In addition, SANDAG is required to re-determine conformity of the Regional Transportation Improvement Program (RTIP), a short-term program of major transportation projects in the San Diego region, within six months from the date of DOT's conformity determination of the new RTP.

DOT made the conformity determination for the 2020 RTP on April 13, 2000 and found the 2002 RTIP in conformity on October 4, 2002.

To evaluate transportation conformity, emissions forecasts were produced for three scenarios, consistent with the 2030 Revenue Constrained Plan highway and transit network alternatives. The emissions analyses were prepared for the years 2010, 2020, and 2030.

On March 28, 2003, the SANDAG Board of Directors found the 2030 Revenue Constrained Plan and the 2002 RTIP in conformance with the 1998 RAQS and 1994 SIP for air quality, and adopted the 2030 RTP.

Growth Forecasts

Every three to five years, SANDAG produces a long-range forecast of population, housing, and employment growth for the San Diego region. The most recent is the Preliminary 2030 Cities/County Forecast, released in October 2002. The SANDAG Board of Directors accepted this forecast for use in planning studies on October 25, 2002.

The forecasts are produced in two phases. Phase 1 uses an econometric model called DEFM (Demographic and Economic Forecasting Model) to produce a detailed forecast for the region as a whole. Phase 2 employs the UDM (Urban Development Model) allocation model to distribute the regional forecast to cities and smaller geographic areas.

Prior to 1994, the Phase 2 allocation process was based entirely on the adopted plans and policies of the 19 local jurisdictions. That year, in the course of producing the 2015 Forecast (also called the Series 8 Forecast) it

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[1] Consistent with 23 CFR 450, the *2030 Revenue Constrained Transportation Plan* includes only those facilities and programs that could be funded with existing state and federal programs and with the current *TransNet* local sales tax program, which expires in 2008.

became apparent that the region's plans, taken in aggregate, could not accommodate the projected growth. Specifically, not enough land was planned for residential use.

That forecast dealt with the lack of housing capacity by using a general intensification process that made small upward adjustments to planned residential densities in all jurisdictions. That produced an acceptable forecast, but it was felt that there was a better approach.

The 2020 Cities/County Forecast (used in the 2020 RTP) was released in February 1999. It dealt with the capacity issue by assuming increased residential and employment densities within a quarter-mile radius of some 150 existing and future transit stations. These Transit Focus Areas (TFAs) were, in effect, nodes of smart growth. In some areas, however, their presence represented too much of a departure from the adopted plans. Also, the locations of the TFAs came from SANDAG's 2020 RTP, rather than from the jurisdictions themselves.

The Preliminary 2030 Cities/County Forecast eliminates the TFAs in favor of Smart Growth Focus Areas (SGFAs). There are fewer SGFAs than TFAs, but all were identified in some manner by the local jurisdictions, not SANDAG. They fall into three categories:

1. Areas identified in the process of a general plan update, such as the City of San Diego's City of Villages areas.
2. Areas suggested by local planners as having good potential for smart growth.
3. Areas the jurisdictions identified as having good potential for redevelopment that also are along the proposed Yellow Car and Red Car routes of the Regional Transit Vision.

SANDAG produced three separate 2030 Cities/County Forecasts for the 2030 RTP analysis, using three different housing unit distributions and capacities. Two of the three 2030 scenarios are relevant to this discussion, as follows:

1. Current Plans: The currently adopted plans and policies of the 18 cities and the County with no smart growth areas added.
2. Smart Growth: The adopted plans in the 18 incorporated cities with the addition of the Smart Growth Focus Areas, constraining future growth in the unincorporated area to be consistent with the new plan the County of San Diego is developing.

The biggest difference in outcomes between these two forecast scenarios was in the amount of land each consumed over the 30-year period. Continued use of the currently adopted plans would result in the consumption of tens of thousands of additional acres of land, most of which are in the environmentally sensitive eastern portion of the region.

SANDAG consulted with the San Diego Region CWG to select the land use scenario for the air quality conformity analysis. Both DOT and the EPA have concurred that approved plans should be used as input in the air quality conformity process. Therefore, the Current Plans scenario was used to run the regional transportation and emissions models for air quality conformity. Table C.1 shows the regional population and employment growth forecast for the San Diego region for the Current Plans scenario.

TABLE C.1—SAN DIEGO REGIONAL POPULATION AND EMPLOYMENT FORECAST

	CURRENT PLANS	
YEAR	**TOTAL POPULATION**	**TOTAL EMPLOYMENT**
2000	2,813,833	1,384,673
2010	3,217,283	1,588,170
2020	3,559,001	1,783,327
2030	3,895,009	1,882,618

SOURCE: SANDAG, 2002

Transportation Modeling

SANDAG follows a widely used four-step transportation modeling process to forecast travel activity in the San Diego region. Travel forecasting procedures are described in more detail in SANDAG's *Regional Transportation Models* (1995) and the draft *Preliminary 2030 Forecast Process and Model Documentation* (February 2003), which are available upon request.

The estimates of regional transportation-related emissions analysis meet the requirements established in the Transportation Conformity Rule, Sections 93.122(b) and 93.122(c). These requirements relate to the procedures to determine regional transportation-related emissions, including the use of network-based travel models, methods to estimate traffic speeds and delays, and the estimation of vehicle miles of travel.

Tranplan is the transportation planning computer package used to forecast travel activity utilizing datasets that are maintained in the geographic information system (GIS). The transportation modeling steps consist of:

1. Generating average weekday person trip ends in each zone,
2. Estimating trip movements between zones using a trip distribution model,
3. Allocating trips to different forms of transportation using a mode split model, and
4. Assigning vehicle trips to road segments using a traffic assignment model.

Two iterations through the modeling process are made to reach equilibrium between transportation facilities and demand, where congested travel times from the first iteration are input to the second iteration.

The transportation models require two major inputs. One input is a zonal level households and land use forecast, which determines the number of trips generated. Highway and transit system networks are the other key input that affects the amount and location of vehicular travel.

Highway Networks

The regional highway networks in the 2030 RTP submittals include all roads classified by local jurisdictions in their circulation elements. These roads include freeways, expressways, and the Regional Arterial System (RAS). The RAS consists of all state highways, prime arterials, and selected major streets. In addition, some residential streets are included in the networks for connectivity between zones.

The route improvements and additions in the 2030 RTP are developed as an integral part of San Diego's regional growth management and forecasting process. They are intended to provide adequate travel service that is compatible with adopted regional policies for land use and population growth. All regionally significant projects from the 2030 Revenue Constrained Plan are included in the quantitative emissions

analysis. These include all state highways, all proposed National Highway System routes, all regionally significant arterials, and all FHWA functionally classified "Other Principal Arterials."

The networks also account for programs intended to improve the operation of the highway system, including high occupancy vehicle (HOV) lanes and ramp metering. Existing and proposed toll facilities also are modeled to reflect time, cost, and capacity effects of these facilities. The SR 125 South project is the only modeled toll facility in the San Diego region.

In addition, several managed/HOV lanes are included in the Revenue Constrained Plan. Facilities with proposed managed lanes include I-5, I-15, I-805, and SR 52. It is assumed that the excess capacity not utilized by carpools and transit on HOV routes with two or more lanes in the peak direction as well as reversible HOV routes would be managed so that single occupant vehicles could use these lanes under a pricing mechanism. Traffic flows would be managed so that the facility would operate at level of service C or better.

Based on the recommended networks and the programs described above, the 2030 RTP transportation forecasts differentiate between single occupant and rideshare vehicle travel times. SANDAG normally maintains networks for 2000 (the 2030 Cities/County Forecast base year) and the years 2010, 2020, and 2030. Appendix A lists the major highway projects included in the analysis.

Locally funded regionally significant projects also have been included in the air quality conformity analysis. These projects are funded with *TransNet* funds, a 20-year half-percent local sales tax for transportation that expires in 2008, and other local revenue sources.

Transit Networks

SANDAG also maintains transit network datasets for existing and proposed transit systems. Bus speeds assumed in the transit networks are derived from modeled highway speeds and reflect the effects of congestion. Regional and express transit routes on surface streets are assumed to operate out of congestion due to priority transit treatments. Freeway HOV lanes and HOV bypass lanes at ramp meters are accounted for and may produce higher bus speeds than on those highways where these facilities do not exist.

Once network coding is completed, the transportation models are run for the applicable scenarios. Three highway and transit networks (2010, 2020, and 2030) were coded for the conformity analysis.

Appendix A lists the major regional transit projects included in the analysis. Locally funded regionally significant projects have been included in the air quality conformity analysis. These transit projects also are funded with *TransNet* funds or other local revenue sources.

Trip Generation

Trip generation is the first step in the transportation modeling process. Average weekday trip ends by all forms of transportation starting and ending in each zone are estimated for 10 trip types: home-work, home-college, home-school, home-shop, home-other, work-other, and other-other, serve passenger, visitor, and airport.

The trip generation model works by applying trip rates to zone level growth forecasts. Trip production rates are expressed as trips per household. Trip production rates vary by trip type and structure type. Trip attractions are expressed as trips per acre of non-residential land use or trips per household. Trip attraction rates vary by trip type and employment type. The 2030 Cities/County Forecast was used to produce trip generation forecasts for 2010, 2020, and 2030.

In recent years, urban planners have engaged in a debate about whether increasing highway capacity generates induced travel. Most opinions revolve around the following ideas:

- Households will make new trips because adding highway capacity reduces the cost or time spent traveling to a location. However, travel costs or travel times will ultimately rise as more vehicles use a facility and the new road begins to experience congestion.

- New facilities may cause a diversion of existing trips from more congested roads to less congested ones. New land uses along a corridor also may result in redistribution of trips to a new destination using an alternative route.

SANDAG's regional transportation model uses a relatively high trip generation rate for households (8.1 vehicle trips per day), which may account for possible increases in trip making as new facilities are built. Also, the model accounts for travel diversion among facilities.

Trip Distribution

After trip generation, trip movements between zones are determined using a trip distribution gravity model. Inputs to the trip distribution model include zone level trip generation forecasts by trip type, zone-to-zone travel times, and friction factors by trip type.

Travel times are based on the 2030 RTP network scenarios. Highway improvements may induce longer trip lengths by allowing motorists to travel farther in the same amount of time. This effect is represented with the trip distribution model. Travel times differ between initial and final model iterations. Initial travel times reflect free-flow conditions and final times reflect the effects of congestion.

Mode Choice

At this point in the modeling process, total person trip movements between zones are split into different forms of transportation: drive alone, 2-person carpools, 3+ person carpools, transit, and other (bicycling and walk). Trips between zone pairs are allocated to modes based on the cost and time of traveling by a particular mode compared to the cost and time of traveling by other modes. For example, vehicle trips on a congested route would be more likely to be diverted to transit than trips on an uncongested freeway.

Income level also is considered since surveys show that high income travelers are more concerned about the level of service offered by a mode than those with lower incomes. The mode choice model is calibrated using 1995 Travel Behavior Survey trip tables by mode and income and 1995 Regional Transit Survey transit trip characteristics. Preliminary Census 2000 journey-to-work data and 2000 onboard transit passenger counts also are used in the calibration process.

A number of data files are input to the mode choice model:

- Zonal incomes,
- Trip tables from the distribution model,
- Peak and off-peak period highway and transit times,
- Transit fares,
- Auto driving and parking costs, and
- Transit accessibility measures.

Highway and transit travel time datasets differ between initial and final passes through the modeling process. Final iteration times reflect congestion effects found in the first iteration.

The model produces a.m. peak, p.m. peak, and off-peak period trip tables for vehicles and transit riders. The a.m. peak period is from 6:00 to 9:00 in the morning and the p.m. peak period is from 3:00 to 6:00 in the afternoon. A series of mode choice model runs were performed in the course of analyzing the 2030 RTP scenarios through two model iterations.

Highway Assignment

Highway assignment produces traffic volume estimates for all roadway segments in the system. These traffic volumes are an important input to emissions modeling.

The highway assignment model works by finding roads that provide the shortest travel time between each zone pair. Trips between zone pairs are then accumulated on road segments making up minimum paths. Highway travel times consider posted speed limits, signal delays, and congestion delays. The model computes congestion delays for each segment based on the ratio of the traffic volume to roadway capacity. Four iterations of equilibrium assignment and capacity restraint are performed within each assignment model run.

Motorists may choose different paths during peak hours when congestion can be heavy than during off-peak hours when roads are typically free-flowing. For this reason, traffic is assigned separately for a.m. peak, p.m. peak, and off-peak periods. Vehicle trip tables for each scenario reflect increased trip-making due to population growth and variations in travel patterns due to the alternative transportation facilities proposed.

Model accuracy is assessed by comparing model estimated 2000 traffic volumes with actual traffic counts obtained through SANDAG's traffic monitoring program and Highway Performance Monitoring System (HPMS) estimates of vehicle miles of travel (VMT).

Post-Tranplan Processing

Standard Tranplan output needs to be reformatted and adjusted to be useful for emissions modeling. Several routines and computer programs have been written to accomplish the following major functions:

- Correcting link specific traffic volume forecasts for calibration error
- Adding in estimated travel on roads not in the transportation modeling process
- Computing link speeds based on corrected link volumes and Highway Capacity Manual relationships between congestion and speed (or signal delay)
- Splitting link volumes into heavy-duty truck and other traffic to obtain speed distributions by vehicle class
- Preparing a data set that contains total VMT, number of trip starts, and VMT by speed category by time of day for each vehicle class

Post-Tranplan processing routines are performed twice. First, they are run after the initial model iteration to provide travel times for the final model iterations. Finally, they are performed on the final model assignments to provide inputs for emissions modeling.

Motor Vehicle Emissions Modeling

Emissions Model

In October 2002, ARB released EMFAC 2002, a new emissions inventory model that calculates emissions for motor vehicles operating in California. It is an integrated model that combines emission rate data with vehicle activity to calculate regional emissions. ARB transmitted EMFAC 2002 to the EPA in December 2002 requesting approval for use in conformity determinations. EPA's approval is expected by March 28, 2003.

The EMFAC 2002 model supports calculation of emissions for the Burden mode. The Burden mode is used for calculating regional emission inventories. In this mode, the model reports total emissions as tons per day for each pollutant, by vehicle class and the total vehicle fleet. The Burden mode uses emission factors that have been corrected for ambient conditions and speeds combined with vehicle activity to calculate emissions in tons per day. Vehicle activity includes the number of vehicles, daily vehicle miles traveled, and the number of daily trips.

The air quality analysis for the 2030 Revenue Constrained Plan was conducted using EMFAC 2002's Burden mode. Projections of daily regional emissions were prepared for reactive organic gases (ROG), nitrogen oxides (NOx), and carbon monoxide (CO).

On-road motor vehicle emissions are attributed to several different processes:

- Starting exhaust
- Running exhaust
- Idle exhaust (calculated for heavy-duty trucks only)
- Resting and diurnal evaporation
- Running losses
- Hot soak evaporation

Emission factors vary by vehicle class, fuel usage, and technology. Thirteen vehicle classes are modeled: passenger car, two types of light-duty trucks, medium-duty truck, two types of light-heavy-duty trucks, medium-heavy-duty truck, heavy-heavy-duty truck, line-haul vehicle, urban bus, school bus, motorcycle, and motor-home. The fuels modeled are gasoline, diesel, and electrically powered vehicles. Technology categories can be grouped into catalyst, non-catalyst, and diesel.

Emission factors for processes that vary by temperature (i.e., starting exhaust, hot soak, and running exhaust) are broken down further by specified temperature ranges. Exhaust emission factors also are broken down by speed range.

Regional Emissions Forecasts

A countywide forecast of average weekday ROG, NOx, and CO emissions was produced for 2010, 2020, and 2030 using the EMFAC 2002 model. ROG and NOx emissions are based on the summer season while CO emissions are based on the winter season.

Emissions Modeling Results

At the date of release of this report (March 19, 2003), the 2030 Revenue Constrained Plan must meet the ozone motor vehicle emissions budget contained in the 1994 ozone SIP as well as the CO emissions budget established in the 1993 CO Maintenance Plan. The emissions budget is the part of the SIP that identifies emissions levels necessary for meeting emissions reduction milestones, attainment, or maintenance demonstrations.

The 1994 ozone SIP establishes a 1999 NOx and ROG budget of 114.25 and 89.60 tons/day, respectively. A 1993 CO budget of 1,194.87 tons/day was established in the CO Maintenance Plan. The projected emissions of ROG, NOx, and CO from the 2030 Revenue Constrained Plan are lower than the 1994 SIP ozone emissions budget and the 1993 CO Maintenance Plan budget.

However, since the San Diego region attained the federal one-hour ozone standard in 2001, the San Diego APCD prepared an Ozone Redesignation Request and Maintenance Plan, which were adopted by the District Board in December 2002.

The Maintenance Plan includes motor vehicle emissions budgets for ROG and NOx for the years 2010 and 2014. ARB submitted this Maintenance Plan to the EPA in December 2002. These new ROG and NOx budgets will become the applicable budgets for conformity determinations after the EPA makes a budget adequacy finding.

ARB currently is preparing a CO Maintenance Plan for the San Diego region. This plan would update the 1993 plan and would cover the second ten years of the maintenance period. ARB is expected to adopt the CO Maintenance Plan in Fall 2003 for transmittal to EPA. The new CO budget would become the applicable budget for conformity determinations after the EPA makes a budget adequacy finding.

SANDAG and the U.S. DOT are required to redetermine conformity of the RTP within 18 months of EPA's adequacy findings for the ozone and CO budgets to comply with Section 93.104(e)(2) for initial SIP submissions.

In addition, SANDAG and the U.S. DOT must redetermine conformity of the RTIP within six months after the MPO adopts a new RTP. The 2002 RTIP relies on the 2030 RTP regional emissions analysis and is consistent with that analysis. The 2002 RTIP conformity determination is being conducted concurrently with the 2030 RTP conformity finding.

Table C.2 summarizes the 2030 Revenue Constrained Plan and 2002 RTIP air quality conformity analysis and the budget test for the current motor vehicle emissions budgets. The analysis for the 2030 Revenue Constrained Plan (including interim years) shows that the Plan meets the existing budgets.

TABLE C.2—2030 SAN DIEGO REVENUE CONSTRAINED PLAN & 2002 RTIP AIR QUALITY CONFORMITY ANALYSIS

SCENARIO	AVERAGE WEEKDAY VEHICLE STARTS (1,000S)	AVERAGE WEEKDAY VEHICLE MILES (1,000S)	CO TONS/DAY	ROG TONS/DAY	NOX TONS/DAY
Currently-Approved SIP Emissions Budget			1,194.87	89.60	114.25
2010 Revenue Constrained	14,989	89,547	451.98	44.12	85.25
2020 Revenue Constrained	16,958	107,622	246.95	27.66	45.13
2030 Revenue Constrained	18,111	120,766	159.08	18.59	26.86

Exempt Projects

Section 93.126 of the Transportation Conformity Rule exempts certain highway and transit projects from the requirement to determine conformity. The categories of exempt projects include safety, mass transit, air quality (ridesharing and bicycle and pedestrian facilities), and other (such as planning studies).

The 2030 Revenue Constrained Plan assumes continued implementation of several of these types of exempt projects that, according to the conformity rule, may be implemented even in the absence of a conforming transportation plan and transportation improvement program.

Table C.3 illustrates the exempt projects considered in the 2030 Revenue Constrained Plan. This table shows short-term exempt projects. Additional unidentified projects could be funded with revenues expected to be available from the continuation of existing state and federal programs.

TABLE C.3—EXEMPT PROJECTS

PROJECT/PROGRAM DESCRIPTION
Bikeway, Rail Trail, and Pedestrian Projects
Camino Del Mar/Jimmy Durante Blvd. Bicycle Bridge
Cliff Street Pedestrian Overcrossing
Coastal Rail Trail
Escondido Creek Bike Path Phases 4 & 5
Escondido Creek Bike Path Undercrossings
Inland Rail Trail Phase 2
Lake Hodges Bicycle-Pedestrian Bridge Approach Improvements
Lake Hodges Bicycle-Pedestrian Bridge
Pacific Highway/Barnett Interchange Improvements
Rosa Street Pedestrian Overcrossing
Rose Creek Bicycle Bridge
San Diego River Bikeway
SR 56 Bike Path Interchanges
Sweetwater River Bike Path
Via de la Valle Bikeways
Regionwide Traffic Incident Management
Freeway Service Patrol
Transportation Demand Management
RideLink Regional Rideshare Program
Regional Vanpool Program
Transportation Management Systems
Automated Traveler Information System
Traffic Management System (I-805, SR 94)
Fiber Optic/Closed Circuit Camera (I-8/15/805)
Ramp Meters (I-5/805, SR 94)
Traffic Monitoring Stations (I-5/805, SR 94)
Other traffic management systems

IMPLEMENTATION OF TRANSPORTATION CONTROL MEASURES

There are four TCMs that must be implemented in San Diego, which the SIP refers to as Transportation Tactics. They include ridesharing, transit service improvements, traffic flow improvements, and bicycle facilities and programs.

These TCMs were established in the 1982 SIP, which identified general objectives and implementing actions for each tactic. A substantial investment has been made in these TCMs since 1982, and they have been fully implemented. Ridesharing, transit, bicycling, and traffic flow improvements continue to be funded, although the level of implementation established in the SIP has been surpassed. No TCMs have been removed or substituted from the SIP.

The four Transportation Tactics, including status and implementing actions in the SIP, are illustrated in Tables C.4 to C.7 that follow.

TABLE C.4—IMPLEMENTATION STATUS OF RIDESHARING (1982 SIP TACTIC 1, LEVEL 2)

IMPLEMENTING ACTIONS IN SIP	IMPLEMENTING ACTION OBJECTIVES	SUBSTITUTE ACTIONS	DUE DATE (IN SIP)	DATE COMPLETED	RESPONSIBLE AGENCY(S)	FUNDING SOURCES
Matching and Employer Promotion: Traffic Abatement Program	Extend traffic abatement ruling down to 50+ employees (from 100+).	None	None	Continues	APCD	Employer Filing Fees
Expanded Rideshare matching	Annually contact and provide personalized matching services to employers with 50 and more employees.	None	None	1988	SANDAG (1995)	STP, STIP, AB2766, TDA
	Promote ridesharing with small employers (10-50 employees) by matching on geographic area.	None	None	1988	SANDAG (1995)	STP, STIP, AB2766, TDA
Expanded Rideshare Budget	Expand budget over next five years based on additional resources provided through CA Rideshare Support and Improvement ACT (SB 320, 1982).	None	None	1987	Caltrans	STP, STIP, AB2766, TDA
Marketing: Annual Advertising and Promotion	Develop an annual advertising program describing rideshare services and benefits to the public.	None	None	1983	Caltrans, SANDAG, City of San Diego, County, Transit Agencies	STP, STIP, AB2766, TDA
Van/Bus/Taxipool Promotion:Promotion	Include promotion of van, bus, and taxi pools as alternative modes in employer presentations.	None	None	1983	SANDAG (1995)	STP, STIP, AB2766, TDA
Tax Benefits	Disseminate information on tax benefits provided for rideshare modes under Rideshare Incentive Act (SB 321, 1982).	None	None	1983	SANDAG (1995)	Caltrans
Parking Management: Vanpool	Review feasibility of free vanpool parking in Centre City. Implement if feasible.	None	None	1988	City of San Diego	City of San Diego
New Development Ridesharing	Provide preferential parking to ridesharers in new developments.	None	None	1985	Cities, County	Private Sector
Rideshare Facilities: Park-and-Ride	Implement park-and-ride program to provide 30 new lots with 3,000 spaces.	None	1987	1987	Caltrans	Caltrans, STP, STIP, AB2766, TDA
HOV Bypass	Provide ramp meter bypass lanes for HOVs where possible.	None	None	1985	Caltrans	Caltrans

TABLE C.5—IMPLEMENTATION STATUS OF TRANSIT (1982 SIP TACTIC 2, LEVEL 2)

IMPLEMENTING ACTIONS IN SIP	IMPLEMENTING ACTION OBJECTIVES	SUBSTITUTE ACTIONS	DUE DATE (IN SIP)	DATE COMPLETED	RESPONSIBLE AGENCY(S)	FUNDING SOURCES
Financing	Seek additional capital and operating support necessary to implement transit tactics.	None	None	1987	SANDAG, Cities, County, MTDB/ NCTD, Transit Operators	FTA, TDA/STA, *TransNet*, CMAQ, Farebox, State Bail Bonds, STIP, APCD
Service Frequency	Depending on financial feasibility, reduce average bus headways to 20 minutes for peak service and to 30 minutes for midday service.	None	1987	1992	Transit Operators	FTA, TDA, CMAQ, *TransNet*, Farebox
Service Coverage	Depending on financial feasibility, expand transit service area coverage so 70 percent of the regional population is within ¼ mile of transit service.	None	None	1991	Transit Operators	FTA, TDA, CMAQ, *TransNet*, Farebox, APCD
Decrease Travel Time	Eliminate underused bus stops (<5 passengers per day), realign underused portions of routes, implement skip - stop operations on routes with 5+ buses/hour.	None	None	1987	Transit Operators, Cities, County	FTA, TDA, CMAQ, *TransNet*, Farebox
Transit Fares	Encourage private employers to provide subsidies for employee ridesharing (i.e. bus passes) through business tax deductions (SB 321, 1982).	None	None	1983	Transit Operators, SANDAG (1995) Employers	Employers, APCD
Regional Transit Service	Depending on financial feasibility:					
	- construct the East Urban Line of the light rail transit system.	None	1987	1995	MTDB	FTA, MTDB, *TransNet*
	- increase express service from 12 percent to 32 percent of total peak bus miles.	None	1987	1987	Transit Operators	FTA, APCD, *TransNet*, Farebox

TABLE C.6—IMPLEMENTATION STATUS OF BICYCLING (1982 SIP TACTIC 3, LEVEL 1)

IMPLEMENTING ACTIONS IN SIP	IMPLEMENTING ACTION OBJECTIVES	SUBSTITUTE ACTIONS	DUE DATE (IN SIP)	DATE COMPLETED	RESPONSIBLE AGENCY(S)	FUNDING SOURCES
Bikeways	Construct approximately 50 miles of new bikeways a year, and require bikeways designated on community and general plans in and adjacent to new development to be built as a condition of development.	None	None	1983	Caltrans, Cities, County	*TransNet*, CMAQ, TDA, TEA, APCD
Parking	Require bicycle parking in new development.	None	None	1988	Cities, County	Private Sector
	Continue the government-supported bicycle locker program.	None	None	1983	Caltrans, Cities, County	STP, STIP, AB2766, TDA
	Provide information to employers on business tax deductions for bike lockers and parking provided through the Rideshare Incentive Act (SB 321, 1982).	None	None	1983	SANDAG	STP, STIP, AB2766, TDA
Marketing	Publicize existing bike racks and emphasize cost savings to bicycle commuters through employer representatives.	None	None	1983	Caltrans, Cities, County	STP, STIP, AB2766, TDA

TABLE C.7—IMPLEMENTATION STATUS OF TRAFFIC IMPROVEMENTS (1982 SIP Tactic 5, Level 2)

IMPLEMENTING ACTIONS IN SIP	IMPLEMENTING ACTION OBJECTIVES	SUBSTITUTE ACTIONS	DUE DATE (IN SIP)	DATE COMPLETED	RESPONSIBLE AGENCY(S)	FUNDING SOURCES
Improve Traffic Signal Operation:	Coordinate the Cities' and County's replacement of fixed time signals with fully actuated signals where appropriate.	None	None	1983	Cities, County, Caltrans	Cities, County, *TransNet*, CMAQ, Caltrans, APCD
	Begin a signal optimization program among local jurisdictions in which signals are adjusted in response to public complaints and on a regular schedule of every three years.	None	None	1983	Cities, County, Caltrans	Cities, County, *TransNet*, CMAQ, Caltrans
	Increase the number of interconnected signalized intersections to 20 percent of all intersections regionwide.	None	None	1987	Cities, County, Caltrans	Cities, County, *TransNet*, CMAQ, Caltrans
	Install computer-based master control systems in San Diego and Chula Vista central business districts (around 200 signaled intersections total).	None	None	1983 - City of San Diego 1990 - City of Chula Vista	City of San Diego, City of Chula Vista	City of San Diego, City of Chula Vista
Traffic Engineering Projects	Design arterial intersections in new developments to carry projected traffic volumes without congestion (≥ LOS C).	None	None	1983	Caltrans, Cities, County	Developers, Cities, County, Caltrans, *TransNet*, CMAQ
	Implement traffic engineering improvements at all heavily congested intersections (≤ LOS E) as finances allow.	None	None	1983	Caltrans, Cities, County	Cities, County, *TransNet*, Caltrans, CMAQ, Developers

Interagency Consultation Process and Public Input

The consultation process followed to prepare the air quality conformity analysis for the 2030 Revenue Constrained Plan complies with the San Diego Transportation Conformity Procedures adopted in July 1998. These procedures comply with federal requirements under 40 CFR 93. Interagency consultation involves SANDAG (as the MPO for San Diego County), the APCD, Caltrans, ARB, DOT, and EPA.

Consultation is a three-tier process that:

1. formulates and reviews drafts through a conformity working group,
2. provides local agencies and the public with opportunities for input through existing regional advisory committees and workshops, and
3. seeks comments from affected federal and state agencies through participation in the development of draft documents and circulation of supporting materials prior to formal adoption.

Several meetings of the Conformity Working Group (CWG) were held during the preparation of the 2030 RTP and its air quality conformity analysis.

- On October 10, 2001, SANDAG staff reported on the organizational approach and presented the 2030 RTP schedule. APCD staff was appointed to represent the CWG at the 2030 RTP Working Group.

- On February 20, 2002, SANDAG staff provided an update on the development of land use and transportation network scenarios that were used for the 2030 RTP alternatives analyses.

- On May 8, 2002, the CWG discussed the use of latest planning assumptions in the 2030 RTP conformity analysis, particularly options related to vehicle registration data. On May 6, 2002, DOT announced it would no longer accept conformity findings with the vehicle registration data contained in EMFAC7F after December 31, 2002. No emissions model would be available to make conformity determinations after that date and until the EPA approves ARB's new emissions model (EMFAC 2002).

- On July 31, 2002, the CWG discussed the implications of a potential conformity lapse on planned and programmed transportation projects.

- On August 21, 2002, SANDAG staff reviewed the schedule for the development of the 2030 RTP Revenue Constrained Plan and informed the CWG that conformity of the 2002 Regional Transportation Improvement Program (RTIP) would be re-determined concurrently with the 2030 RTP.

- On September 18, 2002, SANDAG staff consulted with the CWG on the criteria and procedures to be followed in the preparation of the 2030 RTP conformity analysis. The topics discussed included: assumptions for the Revenue Constrained Plan, use of latest planning assumptions (population and employment forecasts and land use distribution, travel demand model, and vehicle registration data), transportation control measures, latest emissions model, emissions budget and analyses years, exempt projects, and consultation, public involvement, and outreach.

- On October 23, 2002, SANDAG staff presented the draft air quality conformity analysis for the 2030 RTP to the CWG for review and comment.

- On October 25, 2002, the SANDAG Board of Directors accepted the Draft 2030 RTP, including the Revenue Constrained Plan and its draft conformity analysis, for distribution and public comment. The

- Draft Environmental Impact Report (DEIR) was accepted for distribution and public comment on November 14, 2002.

- On December 6, 2002, the SANDAG Board of Directors held a public hearing on the draft 2030 RTP and DEIR. In addition, SANDAG organized three subregional public workshops on MOBILITY 2030 that took place on December 11 in Chula Vista, on December 12 in San Marcos, and on December 14, 2002 in Lemon Grove. The public comment period extended through December 30, 2002.

- As a result of comments received from the CWG agencies, other organizations, and the public, SANDAG has made revisions to the 2030 Revenue Constrained Plan, which is part of the 2030 Draft Final RTP. The air quality conformity analysis also was revised to reflect changes to the Revenue Constrained Plan and was released on February 12, 2003 for public comment.

- On February 19, 2003, the CWG reviewed and commented on the draft air quality conformity analysis of the draft final 2030 RTP. Comments were incorporated in this report.

- SANDAG received no public comments on the air quality conformity analysis of the 2030 RTP Revenue Constrained Plan released on February 12, 2003 for a 30-day comment period.

SANDAG prepared the Air Quality Planning discussion in Chapter 5 and this Appendix C in consultation and cooperation with the San Diego APCD.

Public Involvement Program

From June to December 2002, SANDAG conducted a public involvement program that resulted in participation from a broad range of groups and individuals in the Plan's development and decision-making process. SANDAG staff and Board members participated in more than 30 community events and a series of public workshops throughout the region to raise awareness of the 2030 RTP, to build public support for transportation improvements outlined in the RTP, to provide information to San Diego region residents and other stakeholders, and to stimulate dialogue about the transportation challenges facing the San Diego region during the next three decades.

The public involvement program included an integrated marketing, public awareness, and public outreach program with paid advertising in print and broadcast media, public service announcements, participation in community events, public speaking engagements, and ongoing research and data collection to assess the effectiveness and awareness of the public information effort. Additional details on the program are discussed in Appendix B.

APPENDIX D
LIST OF RELATED STUDIES/REPORTS

STUDIES/REPORTS COMPLETED SINCE THE 2020 RTP

2002 CMP (January 2003)

State Proposition 111, passed by voters in 1990, established a requirement that urbanized areas prepare and regularly update a Congestion Management Program (CMP). The purpose of the CMP is to monitor the performance of our transportation system, develop programs to address near-term and long-term congestion, and better integrate transportation and land use planning. SANDAG, as the designated Congestion Management Agency (CMA) for the San Diego region, must develop, adopt and update the CMP on a biannual basis. The major recommendations of the 2002 CMP update include:

- greater focus on low-cost and near-term strategies to better manage congestion
- increased use of deficiency plans to evaluate congestion "hot spots" and recommend remedial actions
- encourage appropriate mitigation of new development project impacts
- increased monitoring of the CMP implementation to ensure compliance with legislative requirements and to better manage congestion

Central I-5 Corridor Study (January 2003)

SANDAG in partnership with Caltrans, the City of San Diego, and the San Diego Unified Port District completed the Central I-5 Corridor Study in December 2002. The corridor extended from Sea World Drive south to SR 54.

The focus of the study was better access to and from I-5, along with improved north-south mobility on the freeway and parallel arterials. This planning-level study provides the blueprint for future access and mainline improvements related to I-5 in the Centre City area. Improved access to San Diego International Airport, the Port of San Diego marine terminals, and the Old Town Transit Center were priorities in the study. Future analysis will evaluate the impact and feasibility of I-5 HOV lanes through the corridor, along with a closer examination of an improved ramp system for Centre City.

Freeway to Freeway Connectors Study (Fall 2002)

The study prioritized freeway to freeway connectors in the San Diego region. The study evaluated the following six interchange locations for new freeway to freeway connectors using 2030 travel data. Study recommendations have been incorporated into the 2030 RTP.

- I-5/SR 94/SR 163 complex
- SR 94/SR 125 Interchange
- SR 78/I-5 Interchange
- I-5/I-8 Interchange
- SR S6/I-5 Interchange
- I-15/SR S6 Interchange

Regional High Occupancy Vehicle/Managed Lanes (HOV/ML) Study (September 2002)

The Regional HOV/ML study evaluated the demand for carpool and managed lanes facilities on the freeways and state highways in the San Diego region. With the assistance of a technical working group, recommendations for HOV/ML facilities were developed. The recommendations, which have been incorporated into the 2030 RTP, include:

- Four managed lanes facilities on I-5, I-15, and I-805 with value pricing
- One HOV lane in each direction on SR 54, SR 56, SR 94, and SR 125
- Two-lane HOV reversible facility on SR 52
- HOV to HOV connectors

Travel Time Analysis on San Diego's Major Transportation Corridors (September 2002)

Commuters who drive and take public transit were recruited to record their commute times during a three-week period in June 2002. The corridors surveyed were El Cajon to Downtown San Diego, Escondido to Downtown San Diego, Oceanside to Downtown San Diego, Chula Vista to Sorrento Mesa, Escondido to Sorrento Mesa, and Oceanside to Sorrento Mesa. This study served as a pilot study for the regular monitoring program, which began in September 2002.

Pedestrian Design Guidelines (June 2002)

The SANDAG Model Pedestrian Guidelines focuses on creating an environment conducive to walking by integrating a wide range of planning and design criteria. The guidelines begin with the "big picture," namely land use and transportation planning that creates a context for safe and efficient pedestrian environment. The guidelines focus attention on the design on the entire street right-of-way balancing the needs of motorized traffic and bicyclists with those of the pedestrian. These model guidelines are intended to assist local governments and other interested entities in the creation and redevelopment of pedestrian areas and corridors throughout the San Diego region.

Routes 67/125 Corridor Study (June 2002)

The Routes 67/125 Corridor Study evaluated transportation improvements in the State Route 67 corridor. Recommendations include widening of Route 67 to a four-lane conventional highway, and extending Dye Road.

2002 Regional Public Opinion Survey (May 2002)

The 2002 Regional Public Opinion Survey was an outreach and citizen participation component designed to include the San Diego region's residents in the regional planning process and keep SANDAG aware of issues that concern the people who live here. The survey was important to specific SANDAG work program activities best accomplished with direct input from the public. These activities include the update of the 2030 RTP, gauging public awareness of SANDAG's *TransNet* and transportation demand management programs, and the development of a Regional Comprehensive Plan.

SANDAG contracted with Godbe Research & Analysis to conduct a telephone survey of 500 randomly selected households throughout the region. Generally speaking, residents are quite satisfied with their quality of life in the San Diego region. When asked about the region as a whole or about their local community, few residents indicated they are unhappy. However, as this study and recent studies conducted for SANDAG indicate, the issues of traffic on local streets and freeways, growth and overcrowding, and availability of affordable housing, are becoming more prevalent in residents' minds. Other issues that surfaced as perceived priorities throughout the region include: protecting the environment (particularly the beaches) from pollution, improving public transportation services, creating more programs for high risk youth, reducing wait times at the border, and keeping agricultural land.

Global Gateways Development Program (GGDP) (Caltrans - January 2002)

This program is a strategy to improve the capacity and efficiency of California's goods movement system. The GGDP focused on high-priority seaports, airports, international border crossings, trade corridors, major railroads, and highways. It identified access and intrastate transportation systems improvements for potential federal, state, and other funding.

Regional Transit Vision (November 2001)

The Regional Transit Vision (RTV) proposes a significant, new role for public transit in the San Diego region for 2030 and beyond. It is a quality of life strategy developed by SANDAG, the San Diego Metropolitan Transit Development Board (MTDB), the North San Diego County Transit Development Board (NCTD), and Caltrans. The RTV includes four key elements: community design; transit integration; customer experience; and funding.

The routes identified in the RTV have been further evaluated and ranked. The relative rankings of individual rates have been used in the development of MOBILITY 2030.

San Diego Region Vehicle Occupancy and Classification Study 2000 (June 2001)

This study summarizes vehicle occupancy and vehicle classification field data collected at 106 different locations during the Fall 2000. Comparisons are made with previous collection efforts made in 1981, 1985, 1990, and 1995.

Rural Highway 94 Study (January 2001)

The Rural Highway 94 Study evaluated several transportation alternatives to accommodate future traffic flows on the rural Highway 94 corridor. The study recommends a strategy that combines improvements for roads, ports of entry, and rail cargo service.

Feasibility of Opening International Crossing at Jacumba and Jacumé (June 2000)

The study evaluated the feasibility of opening a new international border crossing, linking the communities of Jacumba, California, and Jacumé, Baja California, Mexico. The study presents profiles of both communities, preliminary long-range forecasts of vehicle crossings, potential road alignments leading to the future border crossing, possible funding sources, as well as a description of the permit process to open a port of entry.

REGION2020 Smart Growth Strategy (1999 to 2002)

Between 1999 and 2002, SANDAG prepared REGION2020, a smart growth vision for the San Diego region. It was based, in part, on the Regional Growth Management Strategy, which was called for by the voters in 1988 through the passage of Proposition C, and approved by the SANDAG Board in 1993. REGION2020 was an effort to update the original Strategy to reflect and address the significant changes that the region experienced during the 1990s, and to emphasize key areas for action. Toward the end of the program, it also served to transition into the preparation of a more detailed plan, the Regional Comprehensive Plan, which currently is being prepared.

REGION2020 was based on projections that indicated that the San Diego region would grow substantially between 2000 and 2020, and that the local general plans, on a collective basis, resulted in the following disconnects at the regional level: low existing and planned residential densities in the cities; an imbalance between the amount of vacant land planned for employment uses in relation to that planned for residential uses; separation between residential and employment areas; and the consumption of large amounts of undeveloped land.

REGION2020 provided a framework for addressing these issues. It was based on smart growth, and focused on five key areas of emphasis: the economy, transportation, the environment, housing, and fiscal reform. REGION2020 proposed that local jurisdictions, regional agencies, and other key players work together to:

- Provide more transportation choices, and reduce dependency on the automobile by encouraging more compact, mixed-use development in major activity centers and along transportation corridors;
- Provide more housing choices, especially in existing urban areas closer to jobs and transportation systems; and
- Promote environmentally-sensitive development that conserves energy and water; ensure the protection of resources that preserve the biodiversity of the region; and preserve open space, community parks, agricultural lands, watersheds, wetlands, scenic values, and wildlife.

During the timeframe of the program, three jurisdictions in the San Diego region were undertaking major general plan updates: the City of San Diego, the County of San Diego, and the City of Chula Vista. (These efforts are ongoing.) Each of these efforts was consistent with the smart growth principles advocated in REGION2020. A goal of REGION2020 assumed that most jurisdictions were, or would be, amending their general plans or changing their zoning ordinances to incorporate additional smart growth principles as they worked on specific projects.

SANDAG worked with local jurisdictions to identify commitments that could be made to implement smart growth locally. A menu of commitments was developed, and staff met on an individual basis with each jurisdiction to review current plans, identify areas with the potential for redevelopment and/or infill, and evaluate the location of the transit routes and potential transit stops that were being developed, at that time,

as part of SANDAG's Regional Transit Vision. At the conclusion of the program, the following items were achieved:

- SANDAG adopted a definition and principles of smart growth for the San Diego region;
- Local jurisdictions provided SANDAG with potential smart growth focus areas, in addition to redevelopment and infill areas, for inclusion in the 2030 Regional Growth Forecast;
- Sixty-nine agencies and organizations, including all 19 local jurisdictions in the San Diego region, adopted a Resolution of Support for REGION2020 and smart growth;
- Over 600 residents signed individual endorsement cards in support of smart growth;
- Over 700 people attended the Regional Summit;
- Media coverage of smart growth issues and examples in the region increased; and
- Caltrans awarded SANDAG with a planning grant to complete a more comprehensive, regional plan that would better integrate local and regional plans, and land use and transportation plans, and would incorporate the region's surrounding counties and Baja California.

CURRENT STUDIES

Air Transportation Action Program (December 2003)

In July 2001, SANDAG initiated the Air Transportation Action Program. The action program explored the initial steps of how best to meet the San Diego region's long-term air transportation demand, looking at combining or connecting Lindbergh Field with existing airports, or replacing Lindbergh Field with an alternative airport site. As a result of state legislation, in January 2003 the San Diego County Regional Airport Authority (SDCRAA) assumed responsibility for regional airport planning. Under the guidance of the SDCRAA, a new program is expected to replace the action program but continue the evaluation of long-term air transportation solutions.

The state legislation requires the SDCRAA to place any regional airport proposal on the countywide ballot in 2004 or 2006. If an alternative site(s) is/are approved by the voters, the SDCRAA would perform a detailed environmental study for the selected alternative as the first formal step in implementing the long-term planning process.

Mid-Coast Strategic Transportation Study (Summer 2003)

MTDB is evaluating transportation needs and potential transportation solutions in the Mid-Coast project area. The Mid-Coast Corridor is defined generally as the area north of I-8, south of SR 56, and east of I-805.

This consultant-supported study will focus on refining MTDB's *Transit First* strategic plan, (which is consistent with SANDAG's Regional Transit Vision), and will look at short- and long-term transit improvements to increase mobility in the area.

State Routes 75/282 Major Investment Study (July 2003)

The State Routes 75/ 282 Major Investment Study (MIS) is evaluating long range strategies for relieving congestion along the SR 75/ SR 282 corridor between Glorietta Boulevard and Alameda Boulevard in the City

of Coronado. Alternatives under evaluation include TDM/TSM strategies, traffic signals, grade separation, and tunnel variations.

I-5/Genesee Avenue/Sorrento Valley Road Project Study Report, Project Development Support (June 2003)

In the I-5/Genesee Avenue/Sorrento Valley Road Study, SANDAG is assisting Caltrans and the City of San Diego in the development of a Project Study Report (PSR). The PSR will study alternatives for improving the Interstate 5 interchanges with Sorrento Valley Road and Genesee Avenue, including the operation of I-5 between La Jolla Village Drive Interchange and I-805. As part of this study, a preliminary environmental analysis of the viable alternatives is being completed.

Alternatives being developed can be categorized in one of three areas: interchange improvements at Genesee Avenue, Interstate 5 operational improvements, and interchange improvements at Sorrento Valley Road.

- Genesee Avenue interchange improvements include widening of the Genesee bridge to 6 lanes, matching Genesee Avenue east and west of the bridge. It also includes lengthening of the bridge to provide for the ultimate widening of Interstate 5 under the bridge.
- Alternatives that will provide operational improvements on Interstate 5 consist of braided ramps and auxiliary lanes between Genesee Ave and Sorrento Valley Road.
- Improvements at the Sorrento Valley Road interchange include separation of local traffic from regional through traffic at the interchange, possible revisions to the Coaster Station in Sorrento Valley, and possible direct access ramps to Interstate 5.

The PSR is a follow up to the Sorrento Valley Circulation Study, completed in January 2000, which identified specific causes of congestion and recommended options for improving access at the Sorrento Valley/I-5 interchange.

State Routes 75/282 Project Study Report (March 2003)

The SR 75/282 Project Study Report (PSR) evaluates medium range strategies for relieving congestion along the SR 75/282 corridor between Glorietta Boulevard and Alameda Boulevard in the City of Coronado. Alternatives under evaluation include TDM/TSM strategies, traffic signals, and traffic calming.

FUTURE STUDIES

I-5/I-805 Transportation Study (Spring/Summer 2004)

The I-5/I-805 Transportation Study will develop a coordinated improvement program for the entire I-805 corridor and Interstate 5 south of State Route (SR) 54 to the United States/Mexico international border. The study will be conducted to comply with the State's guidelines for a Project Study Report – Project Development Support (PSR-PDS) document serving both Caltrans and SANDAG. The PSR-PDS identifies transportation issues and alternatives that will be considered to select the appropriate solutions. Extensive public involvement will ensure that the plan reflects the interests of the residents and businesses located within the corridor. The study's recommendations will be incorporated into a future RTP update.

North-South Transportation Facility Study (Spring/Summer 2004)

The North-South Transportation Facility Study will evaluate the need for and feasibility of a new or enhanced north-south transportation facility (e.g., a highway, regional arterial, or transit solution) either east or west of Interstate 15. This study is the second phase of the Routes 67/125 Corridor Study that was completed in June 2002. Transportation alternatives will be evaluated in order to select the preferred strategy for improvements in the study area. The study's recommendations will be incorporated into a future RTP update.

Central I-5 Corridor Alternatives Analysis (Spring/Summer 2004)

The Central I-5 Corridor Study was completed in January 2003. Follow-up studies will evaluate the impact and feasibility of the recommended I-5 HOV lanes through the corridor, more closely examine an improved ramp system for Centre City, and evaluate alternatives to provide improved access to the Tenth Avenue Marine Terminal.

Improved access between I-5 and the Tenth Avenue Marine Terminal is included in MOBILITY 2030, enabling local agencies to pursue federal dollars for more extensive analysis of all the alternatives. A new route could alleviate the impacts of heavy trucks passing through the Barrio Logan community as well as provide additional access to the Convention Center and the developing East Village in Centre City San Diego. Additional analysis is necessary to clearly quantify potential community impacts of any alternative to determine if a new access route should remain a viable project, and if so, where it should be located. The Port of San Diego, the City of San Diego, Caltrans, and SANDAG will work closely with the community on this study to improve access to the marine terminal.

SANDAG also intends to evaluate the costs and impacts of providing HOV lanes on I-5, given ROW constraints, numerous ramps and interchanges, and the need to access major traffic generators in the corridor. This evaluation would especially focus on the Centre City area, where HOV lanes and the ramps serving downtown San Diego and the surrounding communities need close coordination with local planning issues.

Rural Transportation Needs Assessment Study (Spring/Summer 2004)

The Rural Transportation Needs Assessment Study will bring together SANDAG, the County of San Diego, the region's tribal governments, and rural communities in a partnership to assess rural transportation needs, especially areas affected by the growing number of Indian gaming facilities. The project will identify the regional mobility and access needs of the rural communities of the San Diego region and will identify proposed intermodal solutions, including assessing the continuity of public transit systems within and between rural communities and the rest of the region. This future study is included in SANDAG's FY 2004 Overall Work Program as a potential Caltrans grant-funded project.

Route 67 Project Study Report (Spring/Summer 2004)

In cooperation with Caltrans, SANDAG completed a corridor study of Route 67 north of State Route 52 in 2000 (Routes 67/125 Corridor Study). The 2030 RTP estimates the cost of the improvements to Route 67 from Mapleview Street to Dye Road at $240 million. The Caltrans Project Study Report (PSR) and

environmental document will continue the project development process for this segment of Route 67. Caltrans has included the Route 67 PSR in its list of top PSR priorities for FY 2004.

Regional Rail Grade Separation Study (June 2004)

MOBILITY 2030 recognizes the importance of light rail grade separations (both roadway and pedestrian) at critical intersections throughout the region. For the first time, the Plan includes $200 million for regional rail grade separations, and calls for SANDAG, working with the transit agencies and local jurisdictions, to develop a regional evaluation process and criteria to prioritize intersections, such as along the Trolley lines and the Oceanside-Escondido Rail. The $200 million is intended to fund top priority projects as determined through this regional evaluation process. The Regional Rail Grade Separation Study is included in SANDAG's FY 2004 Overall Work Program.

Regional Traffic Bottlenecks Study (June 2004)

Some of the persistent congestion experienced along our region's roadways is the result of "pinch points" where freeway merging and transition moves cause a slowing in traffic. For the first time, MOBILITY 2030 sets aside $100 million in funding within the first 10 years of the Plan to improve these congested spots along our regional highway network. As part of the Regional Traffic Bottlenecks Study included in the FY 2004 Overall Work Program, SANDAG, working with Caltrans and local agencies, will identify and prioritize cost-effective, short-term improvement projects. This $100 million regional set-aside should help attract additional state revenues, such as State Highway Operations & Protection Program (SHOPP) funds, to help ease these congested spots.

GLOSSARY OF TRANSPORTATION TERMS, ABBREVIATIONS, AND ACRONYMS

Transportation, like many other fields, has numerous uses of "jargon." These language short-cuts ease communication among professionals in the field, but can be confusing to everyone else. Here is an abridged list of commonly used transportation terms, abbreviations, and acronyms:

ADA ..... Americans with Disabilities Act:
Federal civil rights legislation for disabled persons that was passed in 1990; requires public transportation systems to be more fully accessible, including the provision of paratransit service.

ADT ..... Average Daily Traffic:
The average number of vehicles that travel on a given roadway in a 24-hour period (weekday).

AHS ..... Automated Highway System:
Roadways on which vehicles are instrumented to operate automatically with minimal operator input. AHS technologies (demonstrated in the San Diego region in 1997) generally consist of advanced guidance and collision avoidance systems designed to eliminate accidents and improve the carrying capacity of the roadway from 2,200 vehicles per lane per hour to about 6,000 vehicles per lane per hour.

Air Cargo ..... Revenue producing items in domestic or international commerce, composed of freight, express, and mail, but excluding passenger baggage.

Air Carrier ..... An aviation operator who provides regular round-trips per week between two or more points and publishes flight schedules that specify the times, days of the week, and places between which such flights are performed; or that transports mail by air pursuant to a contract with the US Postal Service.

Alternative Fuels ..... Low-polluting fuels that are used to propel a vehicle instead of high-sulfur diesel or gasoline. Examples include methanol, ethanol, propane, compressed natural gas, liquid natural gas, low-sulfur or "clean" diesel, and electricity.

Amtrak ..... A federal governmental agency that provides intercity railroad passenger service. Amtrak also provides commuter rail passenger service by contract. In San Diego, Amtrak operates both the Amtrak San Diegan service to Los Angeles and San Luis Obispo (subsidized by the state) and the Coaster service (under contract to NCTD).

Annual Service Miles ..... The number of miles that all transit vehicles travel each year in scheduled transit service operations, or when carrying passengers in door-to-door (or demand-responsive) transit service.

APCD ..... Air Pollution Control District:
The APCD is a government agency that regulates sources of air pollution within San Diego County. The County Board of Supervisors sits as the Air Pollution Control Board. The mission of the APCD is to protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement, and develop and implement cost-effective programs meeting state and federal mandates, considering environmental and economic impacts.

Apportionment ..... A federal budgetary term that refers to a statutorily prescribed division of assignment of funds. It is based on prescribed formulas in law.

Arterial ..... Signalized streets that serve primarily through traffic and provide access to abutting properties as a secondary function.

Auxiliary Lane ..... An additional freeway lane between adjacent interchanges that improves the weaving conflicts between exiting and entering vehicles. The lane begins where an on-ramp enters the freeway and ends at the next off-ramp.

AVL ..... Automated Vehicle Location:
A transportation device that uses the coordinates from earth-orbit satellites to determine the precise location of a vehicle on the earth's surface. AVL is used to manage taxi, bus, and commercial vehicle fleet operations, providing site-specific travel information to travelers based upon the vehicle location.

Bikeway Classifications ..... As defined by the Caltrans Highway Design Manual:

- Class I Bike Path: A paved path within an exclusive right of way.
- Class II Bike Lane: Signed and striped lanes within a street right of way.
- Class III Bike Route: Preferred routes on existing streets identified by signs only.

CAA ..... Clean Air Act:
Federal legislation that sets national air quality standards and requires each state with areas that have not met federal air quality standards to prepare a State Implementation Plan, or SIP. The 1990 amendments to the CAA, often referred to as the CAAA, established new air quality requirements for the development of metropolitan transportation plans and programs. State legislation called the California Clean Air Act (CCAA) sets even more stringent state air quality standards.

CAAA ..... Clean Air Act Amendments of 1990:
Federal legislation which establishes criteria for attaining and maintaining the federal air quality standards for allowable concentrations and exposure limits for various air pollutants. The legislation also provides emission standards for specific vehicles and fuels.

Caltrans ..... California Department of Transportation:
The state agency responsible for the design, construction, operation, and maintenance of the state highway system. The State system includes interstate freeways and state highways. Caltrans and SANDAG cooperate in highway planning and in preparing the funding priorities of the state highway system. Final funding priorities for the region are adopted by SANDAG in the Regional Transportation Improvement Program (RTIP). Caltrans is administered through 12 geographic districts: For Southern California, District 11 (D11) administers San Diego and Imperial Counties, D7 administers Los Angeles County, D8 administers Riverside County, and D12 administers Orange County.

CARB ..... California Air Resources Board:
The state agency responsible for adopting state air quality standards, establishing emission standards for new cars sold in the state, and overseeing activities of regional and local air pollution control agencies.

Carpool ..... An arrangement in which two or more people share the use and cost of privately-owned automobiles in traveling together to and from prearranged destinations, typically between home and work or home and school.

Carsharing ..... Organized short-term auto rental, often located in downtown areas near public transit as well as near residential communities and employment center. Car sharing organizations operate fleets of rental vehicles that are available for short trips by members who pay a subscription fee plus a per trip charge.

CCAA ..... California Clean Air Act:
A California law passed in 1988 that provides the basis for air quality planning and regulation independent of federal regulations. The CCAA requires that local air districts in violation of the California Ambient Air Quality Standard must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

CCI ..... Construction Cost Index:
A measurement of the inflation rate in the cost of major construction projects.

CHP ..... California Highway Patrol:
State law enforcement agency responsible for highway safety.

CHSRA ..... California High-Speed Rail Authority:
The California-High Speed Rail Authority was created by the California Legislature in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger rail system.

CMA ..... Congestion Management Agency:
A countywide agency responsible for preparing and implementing a Congestion Management Program (CMP). SANDAG is the San Diego region's CMA. CMAs came into existence as a result of state legislation and voters approval of Proposition 111 in 1990.

CMAQ ..... Congestion Mitigation and Air Quality Program:
A category of funds contained in TEA-21 for projects and activities that reduce congestion and improve air quality in regions not yet attaining federal air quality standards.

CMP ..... Congestion Management Program:
Required of every county in California with a population of 50,000 or more to qualify for certain state and federal funds. CMPs set performance standards for roads and public transit, and show how local agencies will attempt to meet those standards. The CMP is required to be adopted by the CMA and must be consistent with the adopted Regional Transportation Plan (RTP).

CNG ..... Compressed Natural Gas:
A clean-burning alternative fuel for vehicles.

COG ..... Council of Governments:
A voluntary organization of local governments that strives for comprehensive, regional planning. SANDAG is the COG in the San Diego region.

Community Plan ..... More specific versions of the General Plans, generally dealing with smaller geographical areas, but having the same force of law. See General Plan.

Commuter ..... A person who travels regularly between home and work or school.

Commuter Rail ..... Conventional rail passenger service within a metropolitan area, usually operating over existing, inter-city railroad tracks. Service is normally provided by a diesel locomotive pulling three (or more) passenger coaches, with service primarily in the morning and afternoon home-to-work travel periods.

Conformity ..... A demonstration of whether a federally-supported activity is consistent with the State Implementation Plan (SIP) — per Section 176 (c) of the Clean Air Act. Transportation conformity refers to plans, programs, and projects approved or funded by the Federal Highway Administration or the Federal Transit Administration.

Congestion ..... Congestion is usually defined as travel time or delay in excess of that normally experienced under free-flow traffic conditions. Congestion is typically accompanied by lower speeds, stop-and-go travel conditions, or queuing, such as behind ramp meters or heavily-used intersections. Unacceptable congestion is travel time or delay in excess of an agreed-upon norm. The agreed-upon norm can vary depending on the type of transportation facility, the location, and the time of day.

Corridor ..... A broad geographical band that follows a general directional flow connecting major trip origins and destinations. A corridor may contain a number of streets, highways and transit route alignments.

Corridor Level *Red Car* Service ..... Provides rapid, relatively frequent transit services along the region's major travel corridors, with average speed of 25 miles per hour. The San Diego Trolley is an existing example of Red Car service.

CPI ..... Consumer Price Index:
Developed by the Bureau of Labor Statistics of the U.S. Department of Labor to provide a measurement of the inflation rate in the general economy of a given metropolitan area.

CTC ..... California Transportation Commission:
A state agency that sets state spending priorities for many state and federally funded highway and transit projects and allocates funds to those projects. CTC members are appointed by the Governor.

CVO ..... Commercial Vehicle Operations:
The segment of the surface transportation system involved in the movement of commercial goods or freight. Commercial vehicles are generally trucks and rail cars. The management of these fleets and the movement of freight, including its movement through ports of entry, intermodal transfer facilities, and other services is referred to as commercial vehicle operations.

Deficient Segment ..... As used in the RTP, a portion of freeway experiencing LOS F, where demand exceeds capacity.

DEFM ..... Demographic and Economic Forecasting Model:
DEFM is an econometric forecasting model with a demographic module. It produces annual forecasts of the size and structure of the region's economy and a demographic forecast consistent with that future economy. Outputs include data such as the size and composition of the region's population, employment by industrial sector, household and personal income, housing units by structure type, vacancy status and persons per household, labor force, and school enrollment.

Demand-Responsive Service Transit service that is provided in response to a pre-ordered or telephone reservation.

Development Impact Fee ..... A fee charged to private developers, usually on a per dwelling unit or per square foot basis, to help pay for infrastructure improvements necessitated as a result of the development.

DOT ..... Department of Transportation:
At the federal level, the cabinet agency, headed by the Secretary of Transportation, that is responsible for highways, transit, aviation, and ports. The DOT includes Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), and others. The state DOT is Caltrans.

Drive-Alone ..... See SOV.

EIR ..... Environmental Impact Report:
A detailed statement prepared under the California Environmental Quality Act (CEQA) describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects. The term EIR may mean either a draft or a final EIR depending on the context.

Environmental Justice ..... The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies.

EPA ..... See U.S. EPA.

E-work ..... See Telework.

Expressway ..... Similar to a freeway but with some signal-controlled intersections.

FAA ..... Federal Aviation Administration:
Federal agency that regulates the use of airspace and is responsible for evaluating and disseminating information about hazards and obstructions to aviation.

Farebox Recovery Ratio ..... Measure of the proportion of operating expenses covered by passenger fares. The ratio divides the farebox revenue by the total operating expenses.

Farebox Revenue ..... Value of cash, tickets, and pass receipts given by passengers for payment for rides on public transit.

Fare Structure ..... The varying fees charged to use transit, normally differing by the age of the transit rider, single versus multiple transit trips, the type of service (Trolley, express bus, etc.), and, for some types of services, the length of the trip.

Ferry ..... Transit service provided by boat.

FHWA ..... Federal Highway Administration:
Federal agency responsible for the administration of federal highway funds and issuing policy and procedures for implementation of federal legislative directives. FHWA is a component of the federal DOT.

Fiscal Year ..... The 12-month period established for budgeting purposes. In California, the commonly accepted fiscal year for governmental purposes starts July 1 and continues to the following June 30.

Fixed-Route Service ..... Service provided on a regular, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations. Each fixed-route trip serves the same origins and destinations, unlike demand-responsive services and taxicabs.

Freeway ..... Multilane divided roadway, grade separated from other roadways, with full control access and egress.

FSP ..... Freeway Service Patrol:
An ongoing program to provide a roving tow and motorist aid service. This service assists or removes stranded and disabled vehicles on designated urban freeways and state roadways during the peak period commute hours. It is operated by SANDAG in cooperation with Caltrans and the California Highway Patrol.

FTA ..... Federal Transit Administration:
Federal agency responsible for the administration of federal transit funds. Formerly known as the Urban Mass Transportation Administration (UMTA), FTA is a component of the federal DOT.

Gas Tax ..... The tax applied on each gallon of fuel sold. Currently, the federal government has imposed an 18.3 cents per gallon tax and the state has imposed an 18 cents per gallon tax.

General Plan ..... A policy document required of cities and counties by state law which describes a jurisdiction's future development in general terms in text and map form. It is the document from which all land use decisions must derive. The General Plan contains a set of broad policy statements about the goals for the jurisdiction and must contain seven mandatory elements: Land Use, Circulation, Housing, Conservation, Open Space, Noise, and Safety. Optional elements also are identified by law.

GIS ..... Geographic Information System.

Grade Separation ..... A vertical separation between intersecting roads and or railway tracks. One facility typically travels over or under the other via an overpass, tunnel, or other structure.

HCM ..... Highway Capacity Manual:
A resource for technical information that is used by transportation planners, designers, and operators. The materials contained in the HCM represent a collection of state-of-the-art techniques for estimating level-of-service for many transportation facilities and modes.

Heavy Rail ..... Railroad services that operate in a mixed-user environment on conventional railroad tracks. Heavy rail services include freight trains, Amtrak, Commuter Rail, and most conventional rail transit systems. Services operating in the mixed-user environment must meet federal signaling and crash (buffing) strength standards.

Highway ..... A general term usually referring to a state or federally-designated urban or rural route, designed to accommodate longer trips in the region.

Household ..... All people living in a housing unit, regardless of whether they are related to each other. Housing units include houses, apartments, and mobile homes.

HOT Lane ..... High Occupancy Toll Lane:
HOT lanes are limited access lanes in which carpools, vanpools, and buses travel for free, while other vehicles gain access by paying a fee.

HOV ..... High Occupancy Vehicle:
A vehicle that carries more than one occupant. Examples include carpools, vanpools, shuttles, and buses.

HOV Lane ..... High Occupancy Vehicle Lane:
Exclusive road or traffic lane limited to HOVs that typically has a higher operating speed and lower traffic volumes than a general purpose or mixed flow lane. In California, vehicles that typically can use HOV lanes include carpools, vanpools, buses, other multi-passenger vehicles, and motorcycles and emergency vehicles.

HSR ..... High Speed Rail:
Railroad passenger service that, as defined by California state law, operates at maximum speeds of over 200 miles per hour. Because of the speed, high speed rail normally operates on inter-city (longer) routes and HSR vehicles may not meet federal heavy rail crash standards.

I-15 FasTrak™..... The I-15 FasTrak Program uses electronic toll collection technology to employ dynamic pricing that allows solo drivers to use the lanes for a fee. The net revenues generated by the program are used to improve transit and carpool services in the I-15 corridor.

I-15 IRP..... I-15 Interregional Partnership:
The I-15 IRP is a voluntary partnership of local officials representing SANDAG and the Western Riverside Council of Governments. The I-15 IRP is working to identify and prioritize issues as well as recommend short- and long-term solutions related to the jobs/housing imbalance and traffic congestion along the north I-15 corridor.

Incident ..... An incident may be a traffic collision, stalled vehicle, load spillage, or other event that affects one or more lanes of traffic.

Incident ..... An incident may be a traffic collision, stalled vehicle, load spillage, or other event that affects one or more lanes of traffic.

Inter-city Rail ..... Railroad passenger service which primarily serves longer trips such as those between major cities or regions.

Intermodal ..... Passenger or freight transportation services which involve or use more than one type of transportation facility (or mode). Aviation, automobile, rail, and transit are travel modes.

IMTMS ..... Regional Intermodal Transportation Management Systems:
This network will interconnect the region's local transportation management centers and will enable the modal agencies to cooperatively manage the overall performance of both the local and regional transportation systems.

ITS ..... Intelligent Transportation Systems:
A general classification of transportation technologies, management tools, and services made possible through advances in computer and communication technologies. ITS is used to make transportation systems safer and more efficient.

Light Rail ..... A passenger transportation system of self-propelled vehicles which operate over steel rails located in the street, on an aerial structure, or on a separated right-of-way. Vehicles can operate as a one-car unit or in trains of up to four vehicles, and are powered by either diesel or electric motors.

LNG ..... Liquefied Natural Gas:
An alternative fuel that is a natural gas cooled to below its boiling point so that it becomes a liquid.

LOS ..... Level of Service:
A qualitative measure describing operational conditions within a traffic stream and motorists' perception of those conditions. LOS ratings typically range from LOS A, which represents free flow conditions, to LOS F, which is characterized by forced flow, heavy congestion, stop and go traffic, and long queues forming behind breakdown points.

LOSSAN ..... Los Angeles-San Diego-San Luis Obispo (LOSSAN)
The LOSSAN Rail Corridor Agency coordinates planning and programming on the coastal rail line. SANDAG, MTDB, and NCTD are voting members of LOSSAN along with regional transportation planning agencies in Orange, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo Counties. LOSSAN sets priorities for improvements in the corridor that will increase the capacity of the rail line and the reliability of service.

LRT ..... Light Rail Transit:
A type of transit vehicle and service that uses steel wheels and operates over railroad tracks. LRT systems generally serve stations averaging one-mile apart, are not remotely controlled, and can operate in a separated right-of-way or on public streets. The San Diego Trolley is a LRT system.

Managed Lanes ..... Freeway lanes on which the number of vehicles using the facility can be limited, and/or where the direction of the lanes can be changed.

Mixed Use ..... The combining of commercial, office, and residential land uses to provide easy pedestrian access and reduce the public's dependence on the automobile. It can be implemented in multi-story buildings containing business and retail uses on the lower floors, and residential uses on the upper floors. The uses also can be grouped horizontally, as long as good pedestrian connections between uses are provided.

Mode ..... One of various forms of transportation, including automobile, transit, bicycle, and walking. Intermodal refers to the connection between modes; multimodal refers to the availability and/or use of multiple transportation modes.

MIS ..... Major Investment Study:
A feasibility study and resulting document which is required for major surface transportation projects involving significant federal funds. An MIS identifies the cost-effectiveness and overall effectiveness of various travel modes in serving a study area's travel needs. It also requires broad public and agency input.

MOBILITY 2030 ..... The region's blueprint for a transportation system that enhances our quality of life and meets our mobility needs now and in the future.

Mode Split ..... The percent of trips that use each of the various travel modes. If a specific mode is not stated, the transit percentage is usually implied.

MPO ..... Metropolitan Planning Organization:
A federally-designated agency that is responsible for regional transportation planning in each metropolitan area. SANDAG is the MPO for the San Diego region.

MTDB ..... San Diego Metropolitan Transit Development Board:
The agency created by the California legislature to plan, build, and operate transit facilities in the southwestern portion of the region.

NAFTA ..... North American Free Trade Agreement:
A formal agreement between Canada, Mexico, and the United States to promote means for improved and increased free trade between the three countries. The effect of NAFTA on transportation has been the need to study and upgrade existing facilities, or build new facilities between and within the countries.

NCTD ..... North San Diego County Transit Development Board:
The agency created by the California legislature to plan, build and operate transit facilities in the northwestern portion of the region.

Non-attainment Area ..... A geographic area identified by the U.S. EPA and/or the California Air Resources Board (CARB) as not meeting either the national or California Ambient Air Quality Standards for a given pollutant.

Off-Peak Periods ..... The times of day when the least concentration of vehicles or transit riders are on the road or other transit facility. These times are generally before 6:00 a.m., between 9:00 a.m. and 3:00p.m., and after 6:00 p.m.

Paratransit ..... The range of demand-responsive (or on-request) transit providing service from a trip origin to trip destination.

Park and Ride ..... A travel option where commuters park their personal vehicles in a publicly provided lot or other location, and continue their trip via carpool, vanpool, or transit.

Park and Ride Lot ..... Facilities where individuals can rendezvous to utilize carpools, vanpools, and transit for group travel to their destinations.

Parking Cash-out Program ..... An employer-funded program, which provides a cash allowance to employees who do not drive alone that is equivalent to the parking costs that the employer would otherwise pay to provide a parking space for the employee.

Passenger Miles ..... The total number of passengers carried by a transit system multiplied by the number of miles each passenger travels. Passenger miles are normally measured on a daily or annual basis.

Peak Period ..... The time of day when the greatest concentrations of vehicles or transit riders are on the road or other transit facility. The morning peak period is generally considered to be from 6:00 to 9:00 a.m.; the afternoon peak period is from 3:00 to 6:00 p.m.

PeMS ..... Performance Monitoring System:
The PeMS program uses the urban freeway data collected through freeway loop detectors to provide current, ongoing data on freeway volumes and speeds that can be displayed graphically and exported to other monitoring applications.

Performance Measures ..... Objective, quantifiable criteria used to evaluate the performance of the transportation system and to determine how well planned improvements to the system are achieving the established objectives.

Person Trip ..... Any person's one-way travel to any destination for any purpose. More specifically, a trip is the one-way movement from an origin to a destination, whereby each trip has two trip ends.

POE ..... Port of Entry:
Trans-border facilities that process conveyances, passengers, and all goods entering and exiting the United States. In addition to enforcing U.S. Customs laws, these offices enforce laws for other agencies involved in international commerce.

Preliminary 2030 Cities/County Forecast..... The Preliminary 2030 Cities/County Forecast was approved for use in planning studies by the SANDAG Board of Directors in October 2002. Within the 18 incorporated cities, the forecast is based on current plans and policies plus areas identified by the jurisdictions as having the potential for more intense smart growth development. For the unincorporated area, the forecast uses the population targets and spatial "footprints" that were developed for each Community Plan Area and Sponsor Group Area as part of the County's General Plan 2020 plan update.

PSR ..... Project Study Report:
A preliminary engineering report which documents agreement on the scope, a set of reasonable and feasible alternatives, schedule, and estimated cost of a project so that the project can be included in a future State Transportation Improvement Program (STIP).

Public Transit ..... See Public Transportation.

Public Transportation ..... Travel by bus, rail, or other vehicle, either publicly or privately owned, which provides general or specialized service on a regular or continuing basis.

Ramp Metering ..... Electronic traffic control devices located at freeway access points to meter the entry of vehicles onto the freeway to help optimize the movement of persons and vehicles.

RAQS ..... Regional Air Quality Strategy:
The San Diego County Air Pollution Control District developed the Regional Air Quality Strategy (RAQS) pursuant to California Clean Air Act requirements. It identifies emission control measures to provide expeditious progress toward attaining the state ozone standard.

RCP ..... Regional Comprehensive Plan:
A plan that will serve as a foundation for integrating land uses, transportation systems, infrastructure needs, and public investment strategies within a regional smart growth framework. The RCP will be the regional vision to prepare for change and meet our future needs.

Regional *Yellow Car* Service ..... Provides the fastest type of transit service and is designed to serve longer-distance regional trip making, with an average of 40 miles per hour travel speed. The Coaster commuter rail system is an existing example of Yellow Car service.

Reverse Commute ..... Travel in the direction opposite to the main flow of peak period commute traffic.

REGION2020 ..... The San Diego region's strategy to accommodate projected growth, while maintaining the quality of life. The Strategy seeks to (1) create a sustainable and prosperous economy; (2) provide an equitable and accessible transportation system; (3) preserve natural habitat and open space and protect the environment; (4) provide homes and opportunities for homeownership; and (5) achieve a new state-local tax system and ensure financing for needed infrastructure improvements.

RideLink ..... The San Diego regional rideshare agency that provides information to commuters and employers on travel options such as carpooling, vanpooling, public transportation, bicycling, and telecommuting. RideLink operates a carpool ridematching service, the San Diego Regional Vanpool Program, the San Diego Regional Bike Locker Program, and the RideLink Guaranteed Ride Home Program.

Ridership ..... The number of transit users, usually reported as a yearly total or as the average for a normal workday.

Ridesharing ..... A mode of travel where at least two individuals share the same vehicle to get to their destination. Rideshare vehicles include private automobiles, privately owned and operated vans and buses, as well as public transportation.

Route Miles ..... The length of a transit route or service, multiplied by the number of trips made by transit vehicles or trains each day.

ROW ..... Right-of-Way:
The land required for the construction and operation of a transportation facility.

RSTN..... Regionally Significant Transportation Network:
The regional systems that form the RSTN consist of interstate freeways and state highways, corridor and regional transit services, and a subset of arterials that provide continuous, longer facilities accommodating the highest volumes of regional trips.

RTIP ..... Regional Transportation Improvement Program (RTIP):
A three- to seven-year listing of major highway and transit projects including project costs, funding sources, and development schedules. Compiled from priority lists submitted by local jurisdictions and transportation agencies.

RTP ..... Regional Transportation Plan:
A minimum 20-year plan that is required by state and federal law to guide the development of the region's transportation system.

RTPA ..... Regional Transportation Planning Agency:
A state-designated agency responsible for preparing the RTP and the RTIP and administering state transportation funds. SANDAG is the San Diego region's RTPA.

RTV ..... Regional Transit Vision:
Adopted in November 2001 as a 21st century strategy to develop a seamless public transportation system for the region. The RTV integrates new era transit services into San Diego's growing communities.

State Highway ..... A state-designated roadway. May be urban or rural.

SAHOPE..... Secretaría de Asentamientos Humanos y Obras Públicas del Estado:
State of Baja California Secretary of Public Works and Human Settlements

SANDAG ..... San Diego Association of Governments:
The regional council of Governments for the San Diego region. SANDAG is responsible for long-range transportation planning and programming under both federal and state law.

SD&AE..... San Diego and Arizona Eastern Railway:
The San Diego and Arizona Eastern Railway is the only rail link to the east which will improve the international and interstate movement of goods in, out, and through the Southern California/Baja California region.

SIP ..... State Implementation Plan:
A document that shows the steps planned to meet federal air quality standards (outlined in the Clean Air Act). Each non-attainment area prepares an air quality improvement plan; those are combined to make up the statewide SIP.

SHOPP ..... State Highway Operation and Protection Program:
Caltrans' three-year program to address traffic safety, roadway rehabilitation, roadside rehabilitation, or operations needs on the state highway system.

Smart Growth ..... A compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers and public facilities.

SOV ..... Single-occupant vehicle:
A vehicle with one occupant – the driver. Also referred to as a "drive-alone."

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A vehicle with one occupant – the driver. Also referred to as a "drive-alone."

STIP ..... State Transportation Improvement Program:
A multi-year program of major transportation projects to be funded by the state. The CTC adopts the STIP every two years based on projects proposed in RTIPs and from Caltrans.

STP ..... Surface Transportation Program:
A federal program originally established in the federal ISTEA legislation which provides flexible funding allocated by regional agencies like SANDAG for a wide range of projects including highways, transit, local streets and roads, and bicycles.

TCM ..... Transportation Control Measure:
A transportation strategy intended both to reduce vehicle miles traveled (VMT) and to make VMT more efficient. TCMs include transportation system management (TSM) and transportation demand management (TDM) elements. Examples include carpooling, transit, and computer-optimized traffic signals.

TDA ..... Transportation Development Act:
TDA funds are generated from a tax of one-quarter of one percent on all retail sales in each county and are used for transit, specialized transit for disabled persons, and bicycle and pedestrian purposes.

TCRP ..... Transportation Congestion Relief Program

TDM ..... Transportation Demand Management:
Programs to reduce demand by automobiles on the transportation system, such as telecommuting, flextime, bicycling, walking, transit use, staggered work hours, and ridesharing.

TEA-21 ..... Transportation Efficiency Act for the 21st Century:
Federal legislation enacted in 1998, authorizing the preparation and funding of a surface transportation program. Like the previous ISTEA legislation, TEA-21 emphasizes diversity and balance of modes as well as the preservation of existing systems before construction of new facilities.

Telework ..... Teleworkers or e-workers are wage and salary employees who conduct some or all of their daily work activities from their home or a remote site other than at the normal work site in order to avoid commuting during peak periods.

Tranplan ..... A computer model that simulates travel demand and its distribution to facilities within a geographic area.

Transit ..... See Public Transportation.

TransNet ..... A half-cent local sales tax approved by San Diego region voters in 1987. Administered by SANDAG, this 20-year program to improve the region's transportation system is expected to generate $2.7 billion (in 1995 dollars). The funds are to be divided equally among three major transportation categories: highways, pubic transit, and local streets.

Trip ..... See Person Trip and/or Vehicle Trip.

Trolley ..... The urban light rail transit service currently provided in the San Diego region: the San Diego Trolley.

TSM ..... Transportation System Management:
Strategies that allow transportation systems to operate to maximize the number of persons traveling in a corridor or facility. These strategies include traffic flow improvements, ramp metering, and park-and-ride lots.

U.S. DOT ..... United States Department of Transportation:
The federal cabinet-level agency with responsibility for highways, mass transit, aviation and ports; headed by the secretary of transportation. The DOT includes the Federal Highway Administration and the Federal Transit Administration, among other agencies.

U.S. EPA ..... U.S. Environmental Protection Agency:
The federal agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of national interests in environmental resources.

Vanpool ..... A vehicle operating as a ridesharing arrangement, providing transportation to a group of individuals traveling directly between their homes and a regular destination within the same geographic area. Vanpool vehicles have a minimum seating capacity of seven passengers, including the driver.

V/C Ratio ..... Volume to Capacity Ratio:
The volume of traffic divided by the capacity of a transportation facility. Traffic volume is defined as the number of vehicles passing (or proposed to pass) a point or section of roadway in a given time interval. Capacity is defined as the maximum number of vehicles that can reasonably be expected to traverse that point or section of roadway during the same time period under prevailing roadway, traffic, and control conditions.

Vehicle trip ..... A single vehicle movement from the beginning of travel to its destination, in a vehicle that is motor-driven (e.g., automobiles, motorcycles, trucks, buses, and vans).

VMT ..... Vehicle Miles Traveled:
The total number of miles traveled on all roadways by all vehicles. Reducing VMT can help ease traffic congestion and improve air quality.

Weaving ..... The crossing of two or more traffic streams traveling in the same general direction along a significant length of highway without the aid of traffic control devices.

Work trip ..... Any "person" or "vehicle" trip whose purpose (on at least one trip end) involves work or work-related business.

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